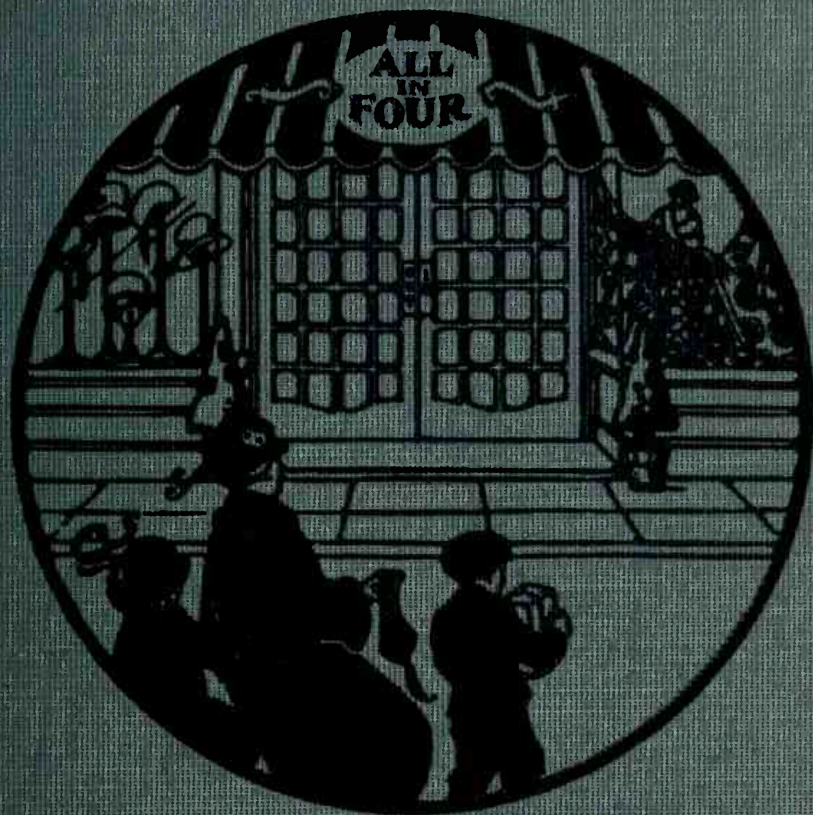



IN STORELAND



Wells-Cushman



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IN STORELAND

BY

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SILVER, BURDETT AND COMPANY

NEW YORK NEWARK BOSTON CHICAGO SAN FRANCISCO

TO
BILLY AND DANNY
AND TO
CHILDREN EVERYWHERE WHO LIKE
TO READ IN ORDER TO
KNOW AND DO

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FOREWORD

THE movement, now well begun, to provide good reading of an informational character for children is undoubtedly sound. No principle of modern psychology appears to be better established than that in order to learn to do a thing you must do that thing and not something else. Applied to reading, this means, among other things, that power to read for information and interest in doing so can be derived only by practice. Literary reading alone will not suffice as material by means of which children may make the most important single acquirement which the school offers to them.

Besides this there is the fact that no wise teacher any longer undertakes to deal with a given subject with a single book. A fuller and richer supply of material is needed than can well be included between the covers of one book.

The authors of the volume in hand are keenly alive to these new demands and they have in addition a conception of a new approach to the learner, in which he is invited to do more than formerly for himself. Many of their co-workers will be quick to see in this book possibilities for class activities at once delightful and profitable. One need not indeed seek the wonderful alone in the world of make-believe princes and princesses; modern industries present a wealth of wonders all their own.

JAMES F. HOSIC.

PREFACE

IN the field of elementary education there is a growing demand for reading material of an informational nature. Children in the grade schools are richly supplied with literature of the fanciful kind. An examination of the material of current readers shows it to consist largely of stories and poems of an imaginative character, historical stories, stories which take the child into the realm of nature, and occasional tales of travel and adventure. But the commonest facts of everyday life have too often been neglected. We seem to have taken it for granted that children absorb all that they need to know about hats and shoes, coats and dresses, needles and pins, houses and furniture, canned soup and green groceries, through constant contact with them.

As a matter of fact, children generally reach adult life without any intimate and intelligent acquaintance with the things which they need and use every day, without any special knowledge of how these things have come to be. Indeed, the intricate machinery and varied processes involved in the making of the most ordinary things are largely unknown even to most adults.

True, there are teachers here and there throughout this broad land who are doing fine things with the content or cultural side of industrial arts, and showing the interdependence of the artist and the artisan. But it is still true in too many places that what is brought to the child in school, in the way of industrial life experiences, is a little dictated "hand work" plus a verbal

pouring-in of facts by the teacher. How much of this stream of knowledge ever becomes the child's own? And how is the busy teacher, who did not have the advantage of training in industrial arts in her own school days, to find time to seek the facts and adapt them to her schoolroom? It is now generally granted that we cannot afford to omit from the school regimen the ideal, the imaginative. No more can we, in this age of industrialism, afford to leave out the practical, the real — the facts which will help the child to interpret his environment, to appreciate the contributions to his comfort and happiness made by all classes of workers, and to adapt himself to living in so complex a world.

Books that will perform this service, simple enough for the child to understand, and interesting enough to hold his attention, are far to seek. IN STORELAND is an attempt to supply reading matter of this kind.

Visual education is coming into the schools in many ways. Moreover, the seeing of actual things, the handling of these things, the study of actual processes in factories, the making of useful articles from raw materials, are even now enriching many courses of study. Where conditions bar such work as this, moving pictures, the stereopticon, and the stereoscope often have a place. But at present these devices are only for the favored schools. The authors have spared no effort, the publishers no expense, to supply, in a form available for every school, pictures second only to the cinema in vividness, accuracy, and fullness of detail. Most of these illustrations were made from photographs obtained directly from manufacturers, from museums, or from our Federal Government.

But valuable as books in general are in themselves, valuable as we hope this book in particular may prove itself to be,

the mere information is of less worth than the stirring up of the will to do, the quickening of fancy, leading to self-expression in language, in action, in material construction. Those who believe in project work will find seed sown for it almost on every page. May the harvest be abundant !

The whole story is active, is a project, so to speak. The Everybody family plans a day's shopping. The children reading the book are given an opportunity to help in the planning and in the carrying out of these plans. There is purpose, motive, "drive," for every experience which the members of the family have in Storeland. Moreover, each activity suggests or leads to further activities on the part of the child readers. For instance, the children are told the story of the gingham dress, but the stories of the calico bag and the muslin curtains are left for the child readers to tell. The set of wool pictures cries aloud for a wool story in words. The lace-makers in the story agree to make Grandma a collar if the Everybody children design it. And are there not Everybody children in every school that would like to use this book ?

May teachers and children find as much pleasure and profit in using this book as we have found in making it !

MARGARET E. WELLS
H. MARY CUSHMAN

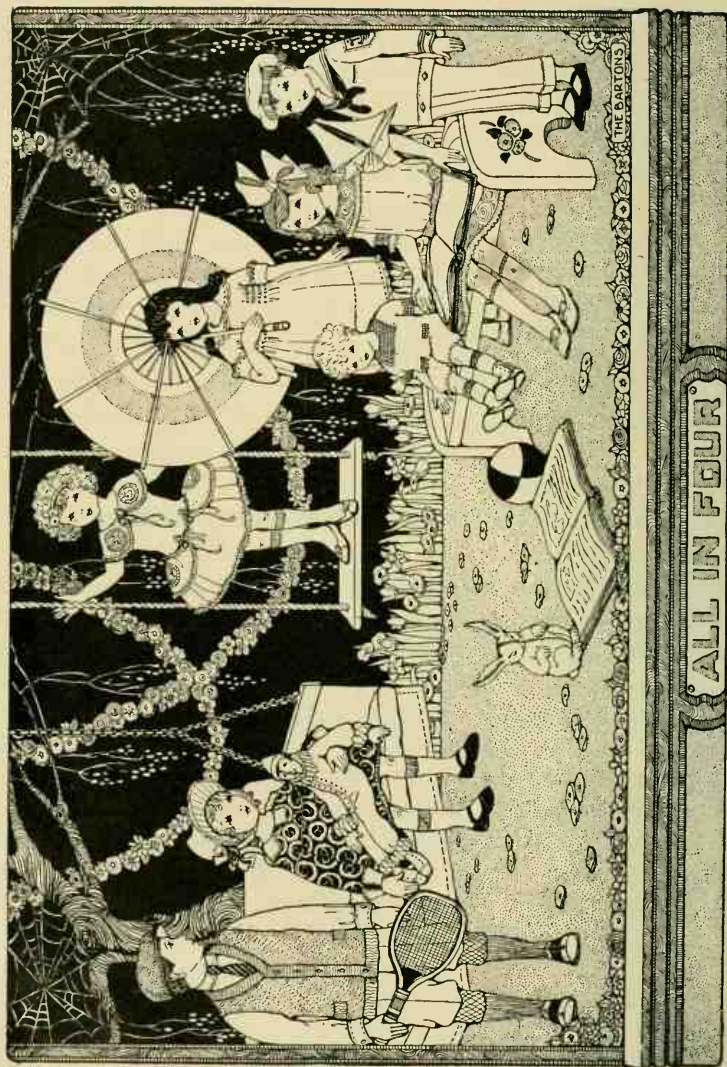
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One of the store windows, dressed for the spring opening. (See page 9.)

STORELAND

WHY DO WE VISIT STORELAND?

"I need some pins and buttons."

"I need some wool and silk."

"And I, some chairs and cushions."

"And I, some more canned milk."

"Now I must have a basket."

"And I must have a hat."

"I must buy Jane a hairnet

And John a new cravat."

"My sheets and towels are tearing,
My rugs are dull and worn,
Curtains and clothes are wearing —
They all look most forlorn."

"My baby needs a pair of shoes,
Bess wants a dress of blue,
My husband wants *The Daily News* —
Pray, tell us what to do!"

What would you have told them to do?

WHERE IS STORELAND?

Is it in the country,
Or is it in the town?
Is it in the city,
Or the village, Sacradown?

Is it east or west from here?
Is it up or down?
Is it on our broad Main Street,
Or the crossroads far from town?

Is it miles and miles away,
Or is it very near?
Can you see it from your home,
From the front door or the rear?

Can you tell where the store is?

HOW DO WE GET TO STORELAND ?

Are we near to Storeland ?

Are we very far ?

Shall we walk along this road,

Or shall we take a car ?

Shall it be a railroad train ?

Shall it be a trolley ?

Shall it be our motor car

Or our good horse Dolly ?

Will it cost a nickel ?

Will it cost a dime ?

Will it cost us even more

To get there in good time ?

Shall you wear your best blue suit

And your hat so new ?

Shall you wear your low-heeled shoes

And your silk hose, too ?

Tell, then, how you go and what you wear.

WHAT SORT OF STORELAND IS IT?

Is it built of fine clay bricks,
Or built of mountain rocks?
Is it built of forest wood
Or man-made concrete blocks?

Does it hold its head up high,
Or is its roof quite low?
Is it one, or two, or three,
Or four flights up you go?

Is it rather low and broad,
Or is it high and narrow?
Is it painted red and white,
Or is its color yellow?

Describe your store.

THE NAME OF THIS STORELAND

When you get there you will find,
On window, sign, or door,
Painted words in colors bright,
To tell who owns the store.

Smith, or Brown, or Jones, maybe,
Gimbel, Stern, or Macy,
Wanamaker, Strauss, or Saks,
Altman, Hearn, or Tracy.

These may not be known to you,
Though known to many more ;
So let us name *our* shopping place
The store of "All in Four."

"All in Four" — what can this mean ?
Tell me, girls and boys,
As you go from floor to floor
For shoes, chairs, tea, and toys.

THE WELCOME TO STORELAND

The door of Storeland, opening wide,
Invites us now to hear
Tales told by many things it sells
To people far and near.

If *all* these tales were printed here,
'Twould not be fair to you
Who love to help make story books ;
So *I* shall give but few.

The others you may tell to me
In your own school-made book,
Which I, perhaps, may find on sale
When in *your* store I look.

A SPRING OPENING IN CLOTHING TOWN

I. THE EVERYBODY FAMILY GOES SHOPPING

Come to the store
Of "All in Four"!
Come; open wide
Is the big front door.

Come from the east,
Come from the west,
Come to the store
Which sells but the best.

Here on all floors
Are signs of spring.
Make out your list,
And full purses bring.

New clothes for old;
Winter has passed.
Great are the bargains!
Come, while they last.

Of course Mrs. Everybody, with Sarah Everybody
and Johnny Everybody and all the other Everybodys,

little and big, went early. "Make out your list." "Full purses bring." Mrs. Everybody needed both a list and a full purse, for she had something to buy for each one in her family. Here is the list, as she wrote it in her little notebook :

GRANDMA — a lace collar
GRANDPA — a light wool sweater
FATHER — rubber fishing boots
NELL — a hair ribbon
SARAH — a gingham dress
JOHNNY — a pair of shoes
BABY — linen rompers
MYSELF — a hat
 hooks and eyes
 snaps
 tape
 pins
 thread, fine and coarse, white and black
 furs to be put in storage

Would you like to know how full Mrs. Everybody's purse was? Find out, boys and girls who go to this spring opening with the Everybodys, what such things as these would cost your mother.

The alarm clock rang very early that morning in the Everybody home. Hasty baths, hasty dressing, hasty breakfasts! At last they were off!

The windows of "All in Four" called loud to the Everybodys as they stepped off the car: "Stop and look at us! See our fine spring clothes! Just look at the children's window!"

They looked, and there they saw figures of boys and girls in new spring suits in a beautiful garden. Some were standing in new picnic swings. Others were sitting in new hammocks. Some were seated on new benches, reading new story books. You may see what the Everybodys saw in this window if you turn to the frontispiece of this book.

"Here is Father and Mother's window," said Nell. "Let us look at it."

There sat a man and a woman reading new seed catalogues, for the time for spring planting had come. Their room had a set of new wicker furniture, cool and clean. And of course they, too, were dressed in new spring clothes. Don't you wish there were a picture of this window, too?

Still another window showed a May party. Here people sat on the bank of a river, eating box lunches. These lunches came from the Food Department on the third floor of "All in Four." Just what was in these boxes is also left for the girls and boys who go with the Everybodys to find out later.

“Come along, children; no more time for window shopping,” said Mrs. Everybody, as she gathered her family together and entered the door. A polite floor-walker stepped up to them. He said in a cheerful voice, “Good morning! Do you wish any help?”

The store in its spring dress looked very different from the store in its winter clothes, so Mrs. Everybody did want some help. “Yes, thank you,” she said. “Where shall we find the cotton goods?”

II. COTTON AVENUE

THE UNDOING OF A GINGHAM DRESS

“One moment, madam,” said the floorwalker, “and I’ll call the Cotton Fairy.” The Everybody children could hardly believe their own ears.

“A fairy? A fairy in a store?” they cried out together. “Isn’t that funny, Mother?”

Just then there came from somewhere — not one of them could tell exactly where — a wonderful white and green fairy. She was so airy and light, so soft and white, that she looked like a little piece of a fleecy cloud. You have seen in the sky fleecy clouds that look like great masses of cotton or wool, have you not? With a wave of her cotton hand she said, in a cottony voice :

“Now come with me,
Good people all,
And I will show you how
The cotton grows
In pretty rows.
The bolls are opening now.”

She led the way to an aisle in the store named Cotton Avenue. The name was written in cotton letters. And

very strange things happened there, as you shall soon hear.

Fairy Cotton called, "Come, Nickapinny ! Show Mrs. Everybody and her children the wonders of the land of cotton."

Now Nickapinny was really a cunning little pickaninny. His home was in the South, the land of cotton. He had come to the spring opening just to tell people about this most useful of all the things used for clothing, the cotton plant. After introducing Nickapinny, the fairy left the Everybodys and went to show other shoppers the way to Cotton Avenue.

Little Nickapinny was a good salesman. Before he showed the Everybodys the wonders of cotton, he took them to choose and buy the cotton dress for Sarah.

The Avenue was very long — one of the longest in Clothing Town. There was one section for each kind of cotton cloth. Each of these sections had not only its kind of cotton cloth to sell by the yard, but also dresses, and other things, all ready to wear, made of that kind of cotton cloth.

The Everybodys passed the ticking and denim, the muslin and calico, the long cloth and cotton crepe, the dimity and mull, the lawn and organdy, the Swiss and madras, and went on to the gingham section. There

Nickapinny showed them dresses of pink and dresses of blue, dresses of green and dresses of yellow — dresses, indeed, of all the colors of the rainbow. Some of the gingham were neither striped nor plaid, but of a solid color. These are often called by another name. Do you know what it is?

Mrs. Everybody let Sarah choose the dress she liked best. It was a blue and white plaid, trimmed with plain blue.

No sooner was the dress paid for than Nicky said, "Would you like to hear a dress talk? Would you like to see something that you have never seen before?"

Of course the children all said, "Yes!" And this is what happened.

Nickapinny took them into a little room where they saw a dress standing up with nobody inside it.

"What is your name, pretty dress?" said he.

"My name is Cotton."

"Now, that is not all of your name. Tell us your whole name."

"My last name is Gingham. My whole name is Cotton Gingham."

"That's a good dress! Now do just as I tell you. Unsew yourself."

"Out, sleeves!" said the dress. "Off, skirt! Out,

hems! Rip, seams!" As the dress fell apart, the voice grew weaker and weaker, and the Everybodys had to listen hard to hear its last words: "Now these are the pieces of gingham of which I was made."

"Fall apart, gingham pieces. Unweave yourselves," said Nickapinny. In a minute, before the eyes of the Everybodys there lay the unwoven threads of blue and white yarn, some running up and down, some running crosswise.

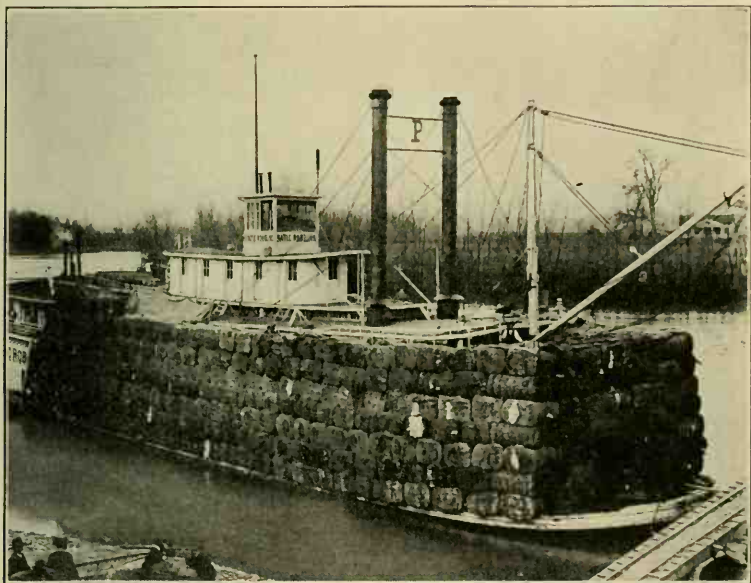
"Now un-dye yourselves, threads of yarn." Suddenly the blue threads became as white as the others.

"Untwist yourself, yarn." Behold, little by little, the yarn swelled and became looser and looser. At last each cotton fiber was free, and the Everybodys saw hundreds and hundreds of fine, straight, combed fibers.

"Now, beautiful white cotton fibers, mix and tangle yourselves as you were before you were carded, and combed or straightened." The cotton fibers curled and tumbled this way and that, until they lay in a tangled heap.

"Go back through the 'picker' which took the sticks and dirt of all kinds out of you." The dirty white masses of cotton which appeared as he spoke, mixed with pieces of leaves and little sticks and even very small stones, did not look much like the cotton yarn.

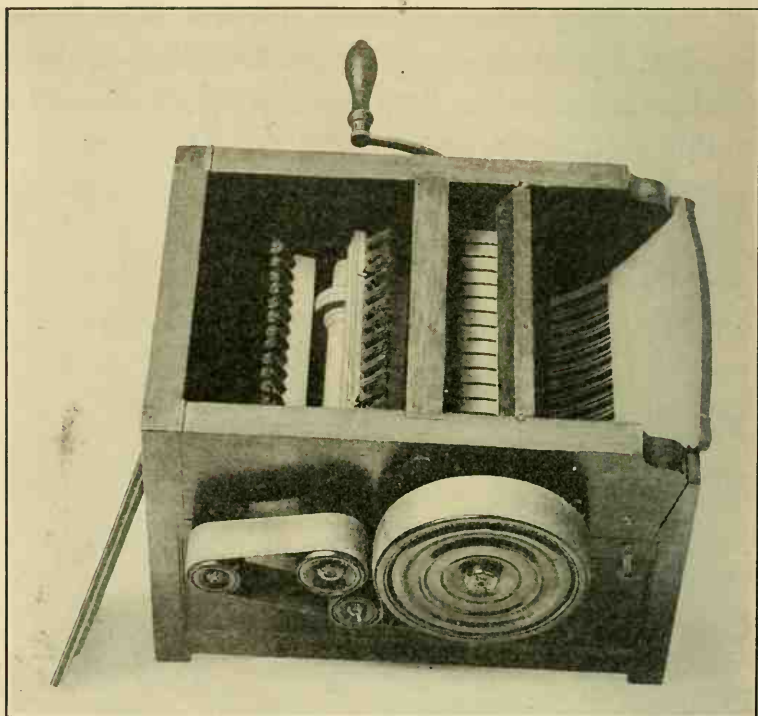
“Now, dirty cotton, go back into your bales.” Before the Everybodies could wink, there lay the large, tightly packed bales, like those you see in the picture on this page, loaded on the steamboat *Katie Robbins*.



Courtesy of the Department of Agriculture.

A steamboat loaded with cotton.

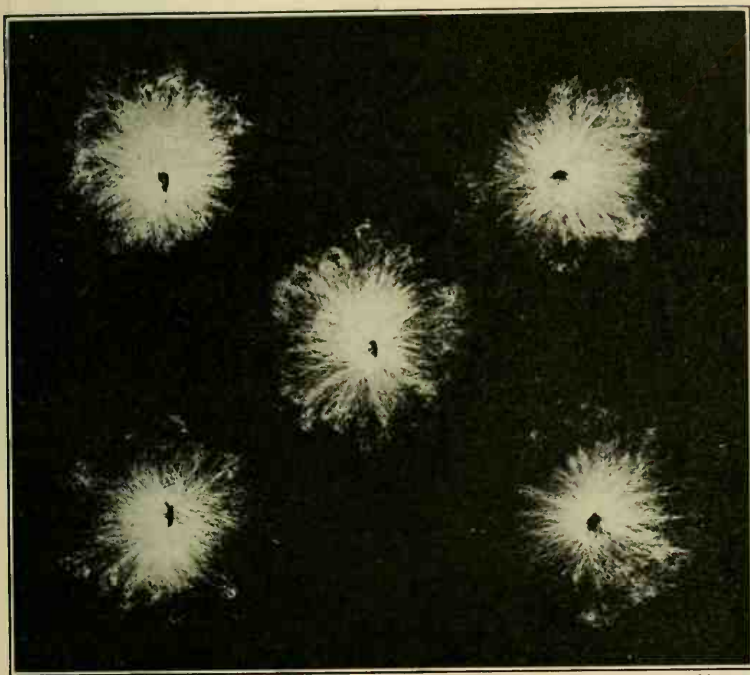
“Open, bales, and show these people how you looked before you were squeezed so tight.” The coarse bagging split, the iron bands broke, and the solid mass of cotton swelled, and swelled, and swelled, till the Everybodies thought it would never stop.



Courtesy of the Smithsonian Institution.

Eli Whitney's cotton gin.

“Now go back through the gin and have your seeds put in again.” Nickapinny waved his hand before their eyes, and they saw a machine like this picture. “Eli Whitney invented this cotton gin because it took so long to pick the seeds out by hand. He did it more than a hundred years ago.



Courtesy of the New Jersey State Museum.

Cotton seeds with their fibers spread out.

“The first small sample gin that he made was stolen. No one ever found out what became of it. But Eli showed his son how to make another like it. This picture was taken from that gin.

“Of course the gins which are used in cotton mills now-a-days are much larger and heavier than this, and better in many ways. But they do the work in very



Courtesy of the Department of Agriculture.

A cotton field with pickers at work. How many do you see? Can you find Nicky? What is the man on the horse doing?

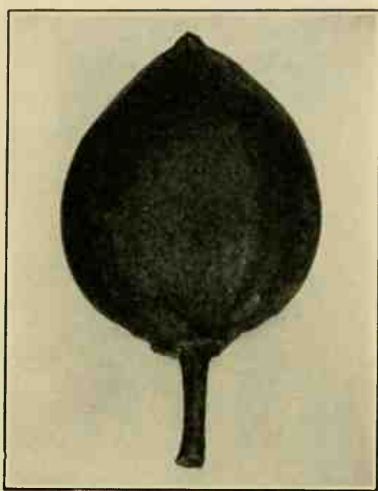
much the same way. Try to find a picture of a modern gin, when you go home."

Pointing to the gin, Nickapinny said, "Back! Back!" The wheels began to turn the other way, and the seedless cotton went back into the gin. From the other end came little bunches of fibers, each with a seed in it. These fibers were not spread out, as they are in the picture on page 17, but were all matted together so that the seeds themselves could not be seen.



Courtesy of the Department of Agriculture.

A cotton boll ready to be picked.



Courtesy of the Department of Agriculture.

A closed cotton boll.

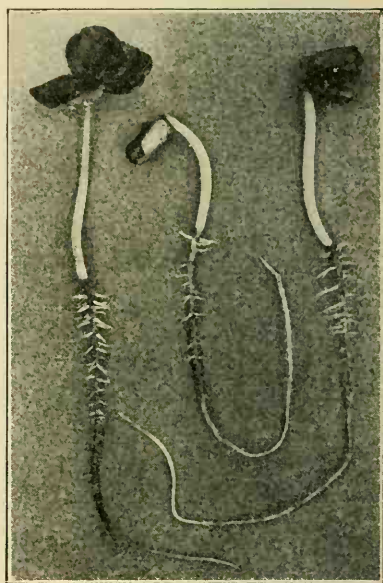
“Back to your bolls! Back to your bolls!” The shoppers saw a great white field of cotton, in the sunny South. These plants had grown old. Their seeds were white-haired and ready to be picked. Nicky showed the children how he used to help pick the cotton snowballs. For before he came to Storeland, he had lived with his mammy, where the cotton grows.

“Now, snowy bolls, bring your walls together.” The white-haired seeds were slowly closed in, till nothing could be seen but tight, round, brownish boxes, each one looking like the picture at the right on this page.



From "The Structure of the Cotton Fiber"
by F. H. Bowerman. By permission of
The Macmillan Company, publishers.

Cotton blossoms.



Courtesy of the Department of Agriculture.

Cotton seedlings.

"Cotton blossoms, cotton blossoms, come back!" Then the snowy field changed into a field of beautiful pinkish blossoms like those in the picture above.

"Back, blossoms, to buds!" The pinkish leaves folded themselves up into green flower-buds. "Back, plants, to your baby form, just out of the seed." Changing like a moving picture, the plants grew shorter and their leaves grew smaller and fewer. Finally, they

looked like the middle seedling in the picture at the right on page 20.

“Hurry, cotton seedlings! Pull in your stems and roots, shut up your seed-coats tightly, and bury yourselves in the ground.” In less than a minute there was nothing left but one cotton seed which hadn’t time to cover itself up before they had a good look at it.

“Now, good people,” said Nickapinny, “you have heard the story of the gingham dress told backward. Who will tell it from the planting of the seed to the dress, ready to wear?”

Just then the Cotton Fairy called Nickapinny to help the next customers on Cotton Avenue. To these he told a story of muslin curtains. To another party he told the magic story of a calico bag. Who can tell these as he may have told them? Had you been Nickapinny, what other stories beginning or ending on Cotton Avenue could you have told?

Every time Sarah put on her new dress she thought of the way its twin sister had been undone by Nickapinny. Whenever she closed her eyes she could see the beautiful Cotton Fairy. And she never forgot what she had learned on Cotton Avenue at the spring opening of the store of “All in Four.”

III. LINEN LANE

THE LINEN MAN AND HIS LINEN BABY

Baby Everybody's turn came next. A step or two to the right brought the family to Linen Lane. How cool and blue it did look! Can you see the bolts of crisp, smooth, shining linen goods of many colors? Long ends were unrolled from some of the bolts and spread on the counters or hung above them. Some were pinned on figures of ladies and little girls, to show how dresses would look. Each seemed to be saying, "Buy me! I'll make you the prettiest suit of all."

"But what are these beautiful little blue blossoms which we see everywhere along Linen Lane?" asked Sarah. "Why are they here? Why didn't we see them on Cotton Avenue?"

Before anyone could answer, Baby Everybody cried, "Mamma, Mamma, this! this!" He held out his chubby hands and pointed with one to a piece of blue linen, with the other to some pink.

"Yes, darling, they are very pretty," said Mother. Just then the kind Linen Lady handed the baby one

of the blue flowers. Of course he began at once to eat it. Mother might have had some trouble in stopping this queer lunch, had it not been for the "great event" just beginning a little farther along the Lane. But even a blue flower lunch is soon forgotten when one sees such a sight as that!

There sat a linen man, dressed in a linen suit of many colors. On his knee he held a linen baby, in blue linen rompers. The man was a real man, with clothes of linen; but the baby was made of linen from his skin in, and dressed in linen from his skin out.

Now, of course, linen babies cannot really talk, but the man made the Everybody children believe that this one was talking. How do you think he did it? The baby shook his head and bowed and nodded. But he told his story without opening his mouth. And the man didn't seem to open his mouth, either, except when he asked the baby a question. These questions were asked in a man's low, strong voice. The answers were given in a baby's high, weak voice. The baby sat up straight on the man's knee, as he began his linen story, but the man kept his hand on the baby's back.

The man said, "Linen Baby, tell these people the story you told me last night."

"All right, Linen Man — if you will give my blue dress to the baby it fits best, and then give me a new pink one. Ha! Ha!"

"That's a bargain, baby! Go on."

"I'm a child now, but once I was a plant. Well, I suppose I was a good many plants! Yes, I was, girls and boys, though you'd hardly believe it, would you? You see, it was this way. Little brown seeds were sown in large fields. These seeds are never called linen seeds. They are called flaxseed. Maybe you have seen them, ground up into flaxseed meal."

"Tell the boys and girls where the fields are," said the Linen Man.

"Yes, I'll tell them the whole story, but you must not interrupt me too often. Not many of these large flax fields are in the United States. This is not one of the best countries for raising flax for clothes. Most parts of it are too dry. So it happens that I'm not an American-born child. I came from across the ocean, but I have forgotten from what country. Ask the Linen Man. He'll tell you. Maybe it was Ireland, or Belgium, or Holland. Maybe it was France, or Germany, or Russia. I was too young then to remember.

"I used to hear my great-grandfather say that men knew how to raise flax and make linen cloth before

they knew how to write. He said that people wore linen clothes four thousand years ago. You can see some cloth as old as that on mummies in museums. This is a picture of a piece of such cloth with Egyptian writing on it."

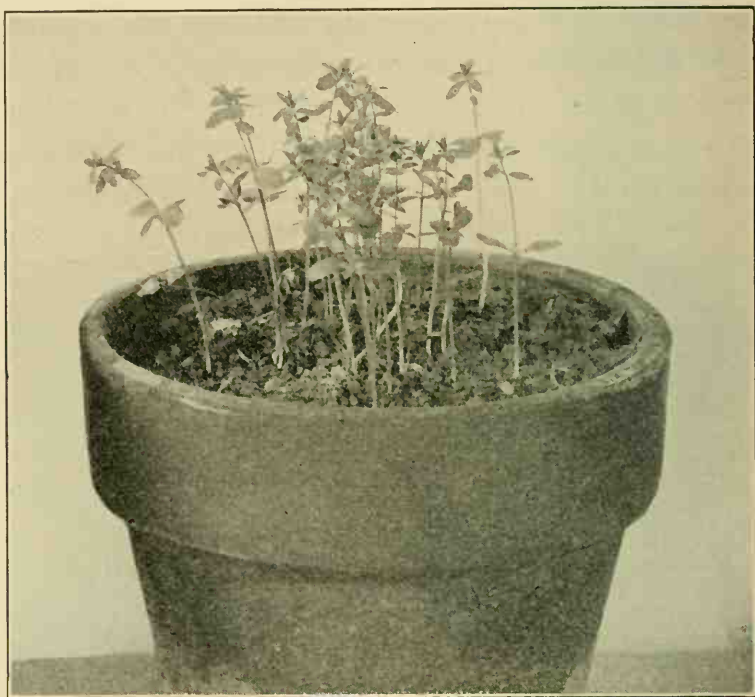


Courtesy of the Metropolitan Museum of Art.

Piece of linen sheet found wrapped around a mummy. The writing says, "The Good God, Lord of the two Lands, Neb-Khepru-Rê, beloved of Min : Linen of the sixth year." This means the sixth year of Tut-ankh-Amen's reign, more than three thousand years ago. What do you know about King Tut-ankh-Amen?

"But how do the seeds turn into linen cloth? These children want to know that," said the Linen Man.

"The seeds are planted in the spring. Soon the fields are green with the pretty flax plants. In a few weeks more they are blue with flowers like those that you see



Courtesy of the Department of Agriculture.

Flax seedlings about four weeks old.

today on Linen Lane. We planted some seeds in this flower pot about four weeks ago, so that you might see the baby plants today. I wish we had done it earlier so that you might have seen the real flowers. But you can easily grow some for yourselves at home.

“By the time the plants are about three feet high,



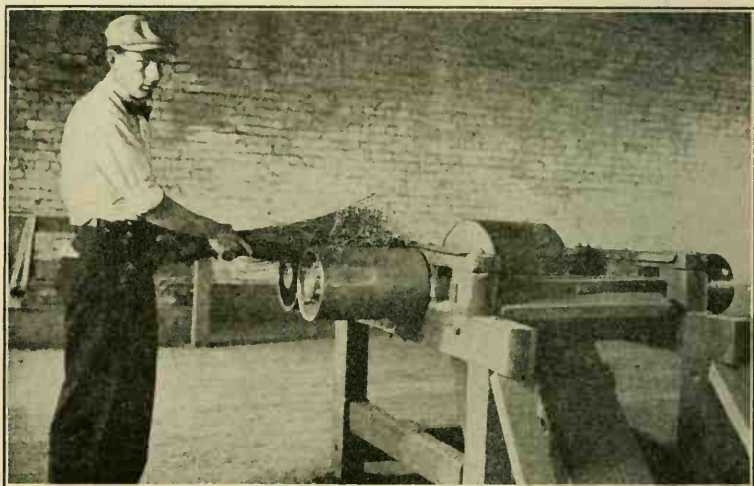
Courtesy of the Department of Agriculture.

Harvesting flax. Three or four bundles will be set up on end, with their tops leaning together, to dry. Have you ever seen shocks of cornstalks set up in this way in the fall?

their seeds are nearly ripe. The plants begin to get yellow, leaves and all. Then they are pulled up and the dirt is shaken from their roots.

“That is what the man is doing in this picture. The bundles which you see lying on the ground are then set up in small shocks to dry. Sometimes the plants are cut off, close to the ground, but this is not so good a way as the other.

“To get rid of the seed bolls and the leaves, the plants are threshed or ‘rippled.’ This is done by drawing them

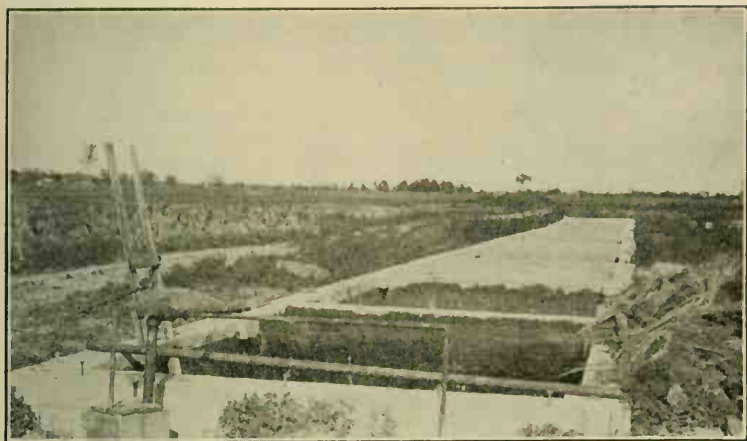


Courtesy of the Department of Agriculture.

A man ripling flax.

through the iron teeth of large combs, or by crushing them between rollers. How is the man in the picture doing it?

“Next the stems must be rotted, to get rid of the gum which holds the fibers together. This is done in different ways in different places. It is called ‘retting’ the flax. In water-retting, the bundles of flax are set up in streams, in ponds, or in tanks filled with water. On the next page is a picture taken in our own country showing cement tanks holding flax for retting. The flax is left in the water from nine to forty days. It



Courtesy of the Department of Agriculture.

Tanks for retting flax in running water.

must be watched very carefully, so that it may be taken out at just the right time, even if this comes in the middle of the night.

“Sometimes flax is retted by spreading it out over the grass, in a thin, even layer, and leaving it from four to eight weeks. This is called ‘dew-retting,’ though any rain that may fall during that time helps the dew to rot the woody part of the stem.

“The bundles of flax which you see in the picture on the next page have been taken from the tanks and set up in small shocks to drain. Now the man is opening the bundles and spreading the flax out on the grass to dry.



Courtesy of the Department of Agriculture.

Spreading the water-retted flax out to dry.

“The next steps are ‘breaking’ and ‘scutching.’ To break the flax, the stems are beaten by hand or passed through a machine which breaks up the rotted wood but does not harm the tough fibers in the stem. This machine is called a ‘brake.’

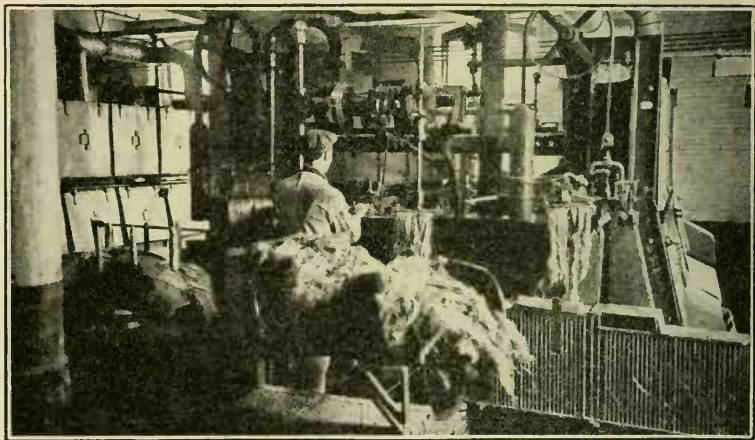
“But the broken pieces of wood stick to the fibers. Getting rid of them is called scutching. The scutching machine whips out these bits of wood. The long fibers are now almost ready for spinning, and are tied up in big bundles.



Courtesy of the Philadelphia Museums, Exhibit in the Philadelphia Museums.

Hackling flax by hand.

“First the short fibers, or ‘tow,’ must be separated from the long fibers, or ‘line,’ by a sort of comb. This is called ‘hackling.’ On page 31, you will see a picture of a Belgian woman, hackling flax by hand. But hand hackling is slow work. Nearly all flax is now hackled by machinery. The picture on this page shows a modern hackling machine.



Courtesy of the Barbour Flax Spinning Company, Paterson, N. J.

Hackling flax by machinery. Where are the long fibers? Where is the tow?

“The long fibers are now laid in bunches, the end of one bunch overlapping the next. These overlapping bunches are passed through sets of rollers forming a sort of ribbon, called a ‘sliver.’ Several of these slivers

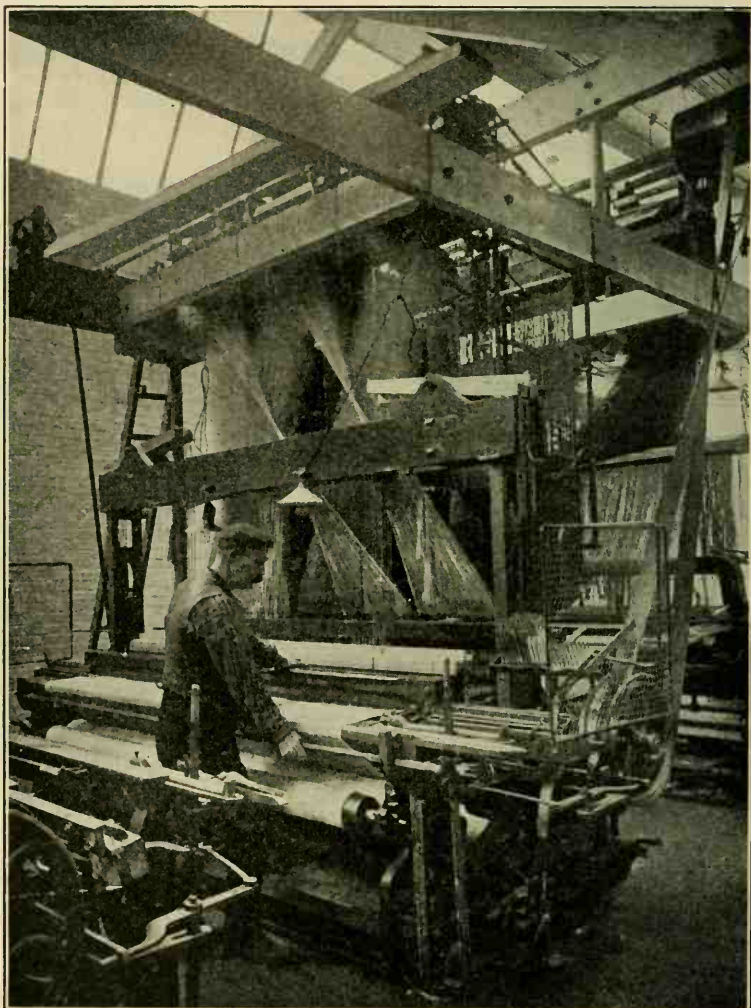
are laid together and slightly twisted. In early days a spinning wheel was used to twist the fibers into yarn. Now, big spinners, run by machinery, are used in factories.



© Publishers Photo Service.

Spinning flax by hand, as it was done in olden times.

“Weaving comes next. Long strands of yarn are stretched lengthwise on a weaving machine, or loom. These strands are called the ‘warp.’ More yarn is wound on a shuttle. This shuttle does not look much like the one on your mother’s sewing machine. But they are both called shuttles because they ‘shoot’ back



Courtesy of Walpole Brothers, New York City.

A loom weaving linen for tablecloths.

and forth. The weaver's shuttle carries its thread under and over the warp threads. The shuttle may be seen at the right-hand side of the tablecloth loom, in the picture on page 34. The crosswise threads, shot through the warp threads by the shuttle, are called the 'woof.' Warp and woof threads, pushed close together, form the 'web,' or cloth. Do you know that weavers used to be called 'websters' because they made webs?

"Different kinds of looms make different kinds of linen cloth. You can see many of these kinds of cloth on our Lane. Ask the Linen Lady to show you linen for sheets, linen tubing for pillow slips, linen for towels, linen for tablecloths, and linen for dresses.

"Many things are done to the cloth before it is packed to be sold to stores. All of it is washed; most of it is bleached. Much of it is dyed. All of it is passed between rollers to make it smooth and shiny. At last it is ready to be made into pretty things like my rompers."

The Everybodys and the other people on Linen Lane thought that the baby's story was ended. But the Linen Man said to him, "Can't you tell these people how they may know whether the rompers you wear are made of cotton or of linen?"

"That is easy," said the Linen Baby. "There are four ways that I know:

"1. If my linen rompers should catch fire, they would burn slowly and without much flame. But cotton rompers would burn quickly and the flame would be harder to put out.

"2. Just put your hand on my sleeve and see how cool it feels. A cotton sleeve would feel much warmer.

"3. Look carefully at the threads in the linen cloth. Some are finer than others, and all of them have little thick parts here and there. In cotton cloth the threads are much more even.

"4. If I drop some water on my sleeve, it makes a wet spot at once, which grows bigger and bigger as the thirsty threads drink up the water. But cotton cloth does not soak up water easily and quickly."

As the Linen Baby was telling his story, he kept his eyes on Baby Everybody, and Baby Everybody kept his eyes on the Linen Baby. When he had finished his story he looked harder than ever at Baby Everybody, and said, "Now, Linen Daddy, who is to have my rompers?"

Several mothers tried the rompers on their babies, but they were too short or too long, too wide or too narrow, to fit them. But when Baby Everybody tried them on, they were just right! So Mother let him wear his pretty new rompers and had the old ones put in a box, to be sent home.

As the Everybodys went out, the Linen Man said, "When you go home, children, set your dolls on your knees, and see whether you can make them tell you the story that you have just heard from my doll."

Meanwhile the Linen Baby, with a new pair of pink rompers on, sat up and looked around for more people to whom to tell his linen story.

IV. SILK STREET

A LIVE MERRY-GO-ROUND

The Everybodys walked on to the next aisle. It took only a minute for Nell to see that this was the place that *she* was looking for. For there hung a beautiful white silk banner, with letters of bright-colored silk, saying :

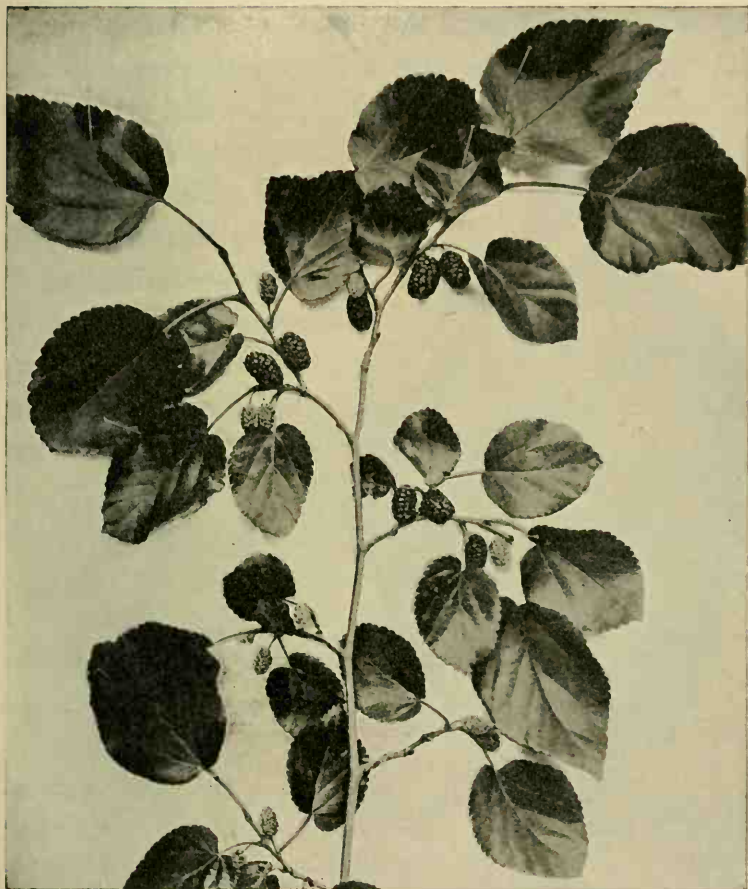
SILK STREET

THIS WAY TO THE LIVE MERRY-GO-ROUND

“Oh, Mother, we can get my new hair ribbon here, can’t we?” said Nell.

“Yes,” answered Mother. “But we may find it hard to choose from all these beautiful ribbons. They are so pretty that I am afraid I shall want to buy hair ribbons for all of you, even for Grandpa !”

Silks and ribbons of all colors rustled and shone in the sunlight as one looked down Silk Street. A little Japanese lady went back and forth, showing people where the event of Silk Street was to take place.



© Corticelli Silk Company, Florence, Mass.

A mulberry branch with berries.

At last the time had come. The crowd was now big enough for the show to begin. The Japanese lady

stepped forward upon the stage, and stood under a leafy mulberry tree. She waited until everyone was quiet and then she began to speak.



© Corticelli Silk Company.

Silkworms about eighteen days old.

“Ladies and gentlemen, girls and boys, the story you are going to see and hear has really no beginning and no end. It keeps on going round and round, unless man stops it. It is the story of little creatures that ride through life in what I have called a merry-go-round. They use the leaves of a mulberry tree as their dining-tables, and they eat the table itself. You see some of them be-

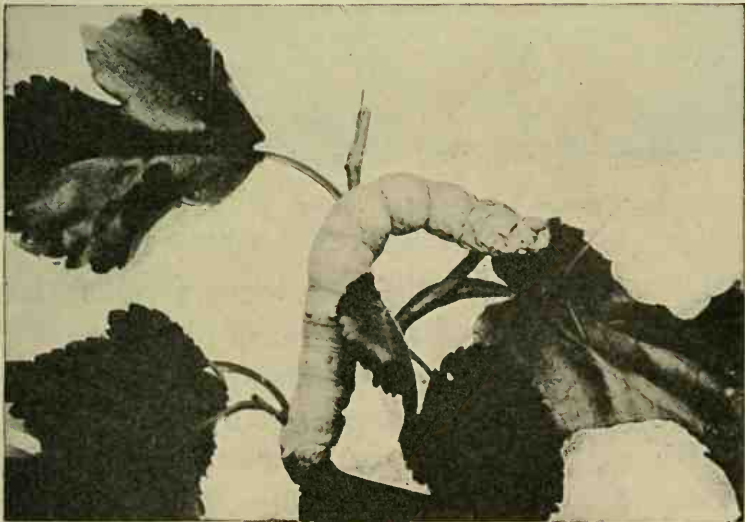
ginning on the edges of this leaf, and the next picture shows a worm that has eaten most of its dining-table.

“The riders of this merry-go-round are hatched

from eggs that are nearly round and that look like tiny yellow seeds. There is a little spot on each egg. That is the door of the egg-house. When the baby inside is ready to come out, it gnaws a hole there.

“Such a funny baby! It is black, and covered with long hairs. If you counted its legs, you would find that there are sixteen of them; but they are not all alike. Only six of them are real legs.

“As soon as the baby is born, it sucks the sap from the mulberry leaves. When it is old enough to take solid food, it eats the green part of the leaves, between

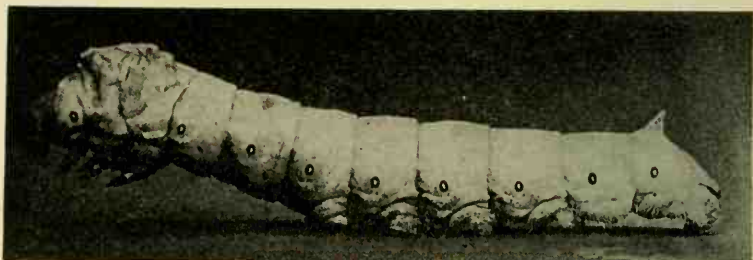


© Corticelli Silk Company.

A silkworm holding the edge of a leaf with its six real legs while it eats.

the veins. The picture shows how the silkworm holds a leaf with its front legs, while it eats. Its jaws move sidewise as it chews — not up and down, like yours.

“These babies have no noses. They breathe through holes in their sides. There are nine of these holes on each side. Can you find them in any of these pictures? Another thing that makes these babies seem queer to us is that they have no eyes. They get along, as blind persons do, by touching or feeling things about them.



© Corticelli Silk Company.

A silkworm beginning its last molt. You can see the front part of its old skin wrinkled up just back of its head.

“Like real babies, these silkworms grow so fast that their clothes soon get too small for them. But unlike real babies, their clothes are their skins! They molt, or cast off their outgrown clothes, four times before they get to the next part of the merry-go-round.

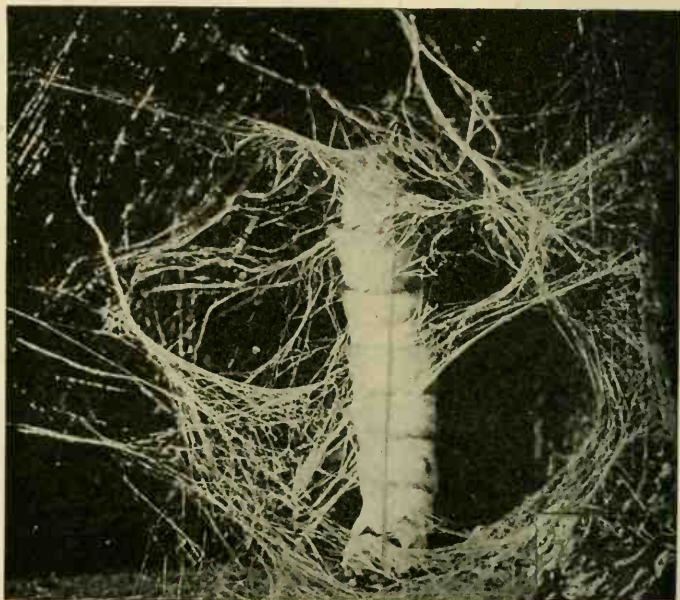
“The silkworm baby must change its dress without any help from its mother. It holds fast to something

with its ten hind legs, as you see in the picture on page 42. It pushes its head out first. Then it works hard, wriggling and twisting till it is entirely out of its old skin. Its new suit is already on, but the poor little baby is all tired out and doesn't eat anything for several days. Then it eats and grows faster than ever.

"Each new skin is lighter in color than the old one. Each is trimmed with fewer hairs. The largest dress worn in this part of the merry-go-round is a light cream color, and has no hairs at all. The silkworm has now grown from a thin baby, one-eighth of an inch long, to a very fat baby, three inches long.

"All this time, material for the silk which it will spin later is being made from its food and stored in its body. When there is enough of this, the little creature not only stops growing, but begins to get smaller. It stops eating and its color changes to a pinkish white. It becomes very restless. If it could talk, it would tell you that it is ready now for a long, long rest. It would tell you that it is looking for a good place to build a silken house, or cocoon, for itself.

"Would you like to know how silkworms begin the work of cocoon building? First they spin threads of silk, fastening them in many spots so that the house will be held safe in place. The picture on page 44 shows



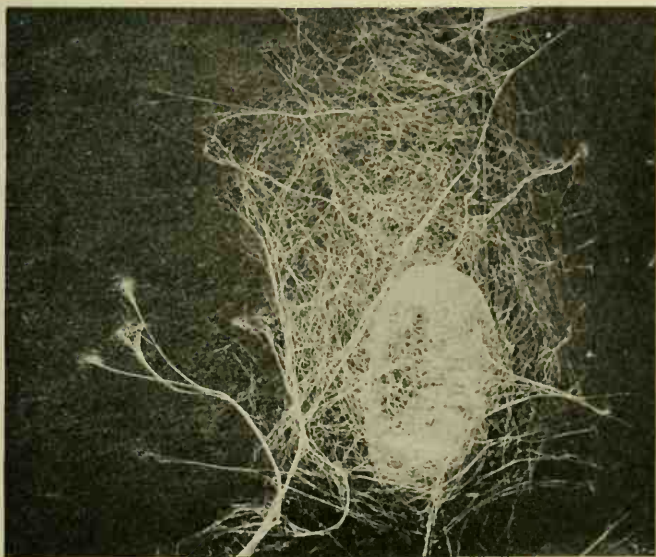
© Corticelli Silk Company.

A silkworm getting ready to spin its cocoon.

these anchor lines or guy ropes. The fine, fine silken strings come from two tiny openings below the mouth.

“The silkworm now begins to wind the thread round and round its body. The picture on page 45 shows the egg-shaped cocoon almost hiding the busy little builder inside.

“In three days the silken house is finished. No door or window — not even a tiny crack in the wall — lets in the light.



© Corticelli Silk Company.

A cocoon partly formed. The silkworm inside can still be seen.

“Most people do not know what is happening to the little life in this part of the merry-go-round. But I know, and I’ll tell you the secret. The little creature shrinks till it is only an inch and a quarter long. Instead of its last baby dress, it puts on a very different sort of dress, because a great change has come to it. It is no longer a silkworm, which is really a kind of caterpillar. It is now a chrysalis.

“This new dress is light yellow. It is trimmed with two wings, which fold over the breast. Instead of six-

teen legs, one can see, fastened down flat on the chrysalis, six legs. But two horns or feelers can also be seen, fastened down flat, or perhaps just showing their shape through the skin. In a short time this soft yellow dress becomes hard and brown, like a shell. The little creature inside has not only this queer, brown, rubber-like coat to protect it; there is also the silken house, or cocoon, to keep it warm and dry.



© Corticell Silk Company.

The side of a chrysalis.



© Corticell Silk Company.

The bottom of a chrysalis.

“Inside these double houses of the merry-go-round, a sort of magic is going on. Under the wing trimmings of the chrysalis, real wings grow — four of them. The six leg trimmings become real legs; the horns or feelers, real feelers. Gradually a moth is being formed inside.

“Many people would take this moth for a butterfly, for it looks like the picture on the next page. Its body is more than an inch long. Both body and wings are cream-white and velvety. See those two feathery feelers or horns! The moth has eyes, though the silkworm had none. And it has no mouth, though the silkworm ate all the time.

“When all the changes are finished, the shell of the chrysalis splits, and the moth gradually works its way out. Pushing aside some of the silken threads which make the wall of the cocoon, and breaking many of them, it comes out into the air, head first. The merry-go-round is now almost ready to begin another circle!



A silk moth, larger than life.

© Corticelli Silk Company.

“The male and the female moths now marry. After this, the mother moth lays her eggs, three or four hundred of them. It takes two or three days for the egg-laying. Then she dies, leaving her many children to be born and to go through all the changes of the merry-go-round I have told you about.

“All the beautiful things which you see on Silk Street came out of this merry-go-round. But to get them,



© Corticelli Silk Company.

A silk moth coming out of its cocoon. The picture is much enlarged.

man breaks into some of the circles. You remember my saying that when the moths come out of the cocoons they break the silken thread. Indeed, they make a round hole in one end of the cocoon. This makes it impossible to unwind the thread smoothly. So the silkworm farmers put the cocoons in hot water or in a steam heater to kill the moths before they begin

to gnaw their way out into the world. The merry-go-round of life stops for those moths whose homes are used for the finest silk. It goes on and on for those who are to be the parents of new families of silkworms.



© Corticelli Silk Company.

Empty cocoons. How many of the moths have flown away?

“How the yards and yards of fine fiber are unwound from the cocoon and spun and dyed and woven would make another story. But I must leave you now.”

The little lady bowed in real Japanese fashion, kneeling and bending till her forehead touched the floor. Rising, she blew a kiss to the mulberry tree, and walked away. The clapping of many hands showed how much her hearers had enjoyed the story.

Of all the hair ribbons which Nell ever owned, she liked best the one she bought on Silk Street that day. For whenever she wore it, she thought of the Silk Lady and the story of the Live Merry-Go-Round.

V. WOOL ROAD

A SET OF WOOLLY PICTURES

After leaving Silk Street the Everybody family decided to look next for Grandfather's new wool sweater. The "Baa, baa" of a pretty white lamb, which they soon heard, showed that they were going the right way. After a look at the blankets and dress goods, the underwear and sweaters, they hurried on to find out what the man at the other end of Wool Road was about to say. He was standing on a platform, in front of a large white screen. This is what they heard.

"Ladies and gentlemen, girls and boys, we are going to tell you a story in pictures. After you have seen the pictures, the boy or girl under ten years of age, who tells the story best in words, is to have this." He held up a fine gray sweater.

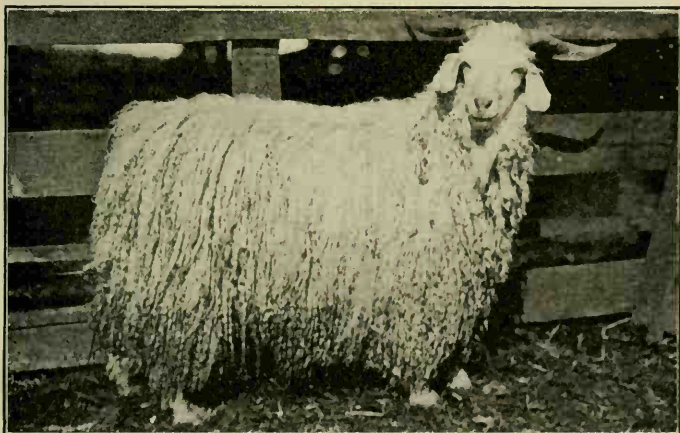
"Just the thing for Grandpa!" said Johnny. "Let's get it for him."

"You'll have to earn it, if you want to get it," said Mother. "So put on your thinking-caps while you look at the pictures."



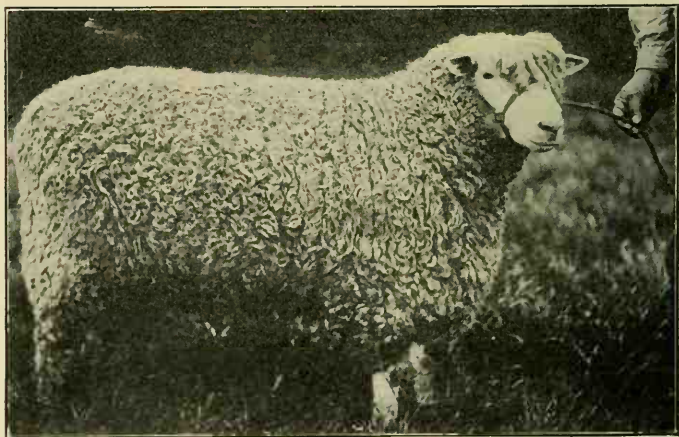
Courtesy of the United States Forest Service.

A land where thousands of shaggy-coated sheep are raised.



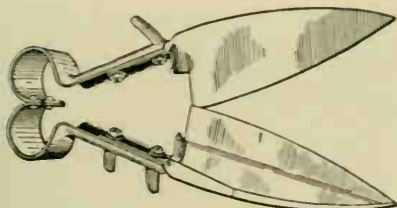
Courtesy of the Department of Agriculture.

An Angora goat, a fine wool-bearer.



Courtesy of the Department of Agriculture.

Two more fine wool-bearers. Above, a merino ram, or male sheep; below, an English ewe, or female sheep.



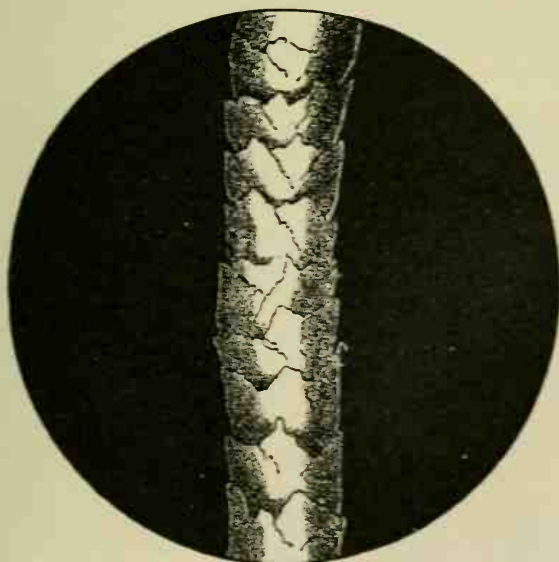
From Posselt's Textile Library, Part Three.

A pair of sheep shears.



From Posselt's Textile Library, Part Three.

A lock of wool.



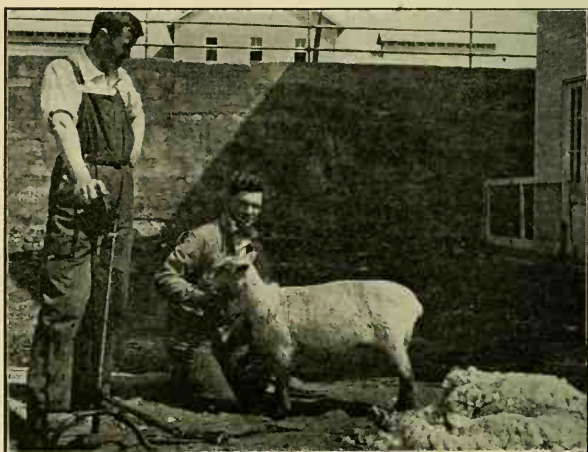
From "Woollen Spinning," by C. Vickerman. By permission of The Macmillan Company, publishers.

One fiber of wool, drawn 250 times as thick as it really is.



Courtesy of the Department of Agriculture.

Shearing a sheep with a machine run by hand.



Courtesy of the Department of Agriculture.

The sheep, after shearing.



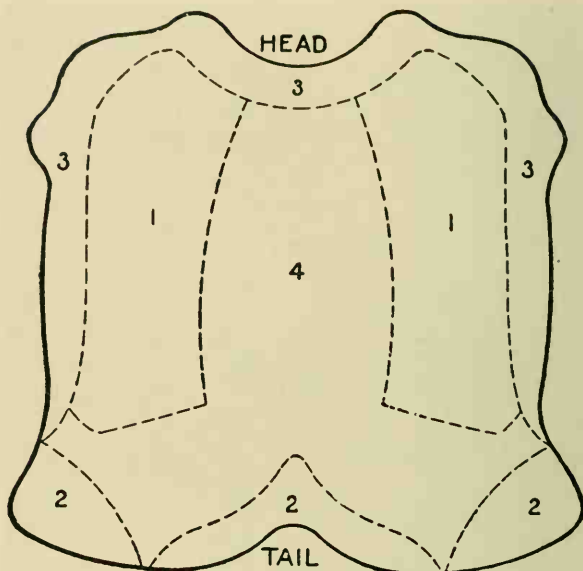
Courtesy of the Department of Agriculture.

The fleece of one sheep.



Courtesy of the Department of Agriculture.

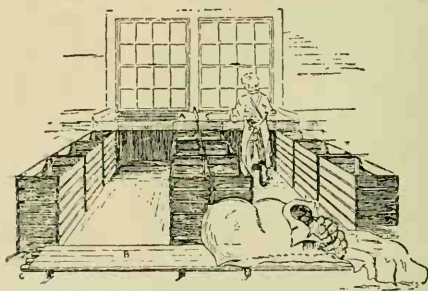
Shearing hundreds of sheep at one time, with machines run by steam.



From "Woolen and Worsted Spinning," by Miles Collins.

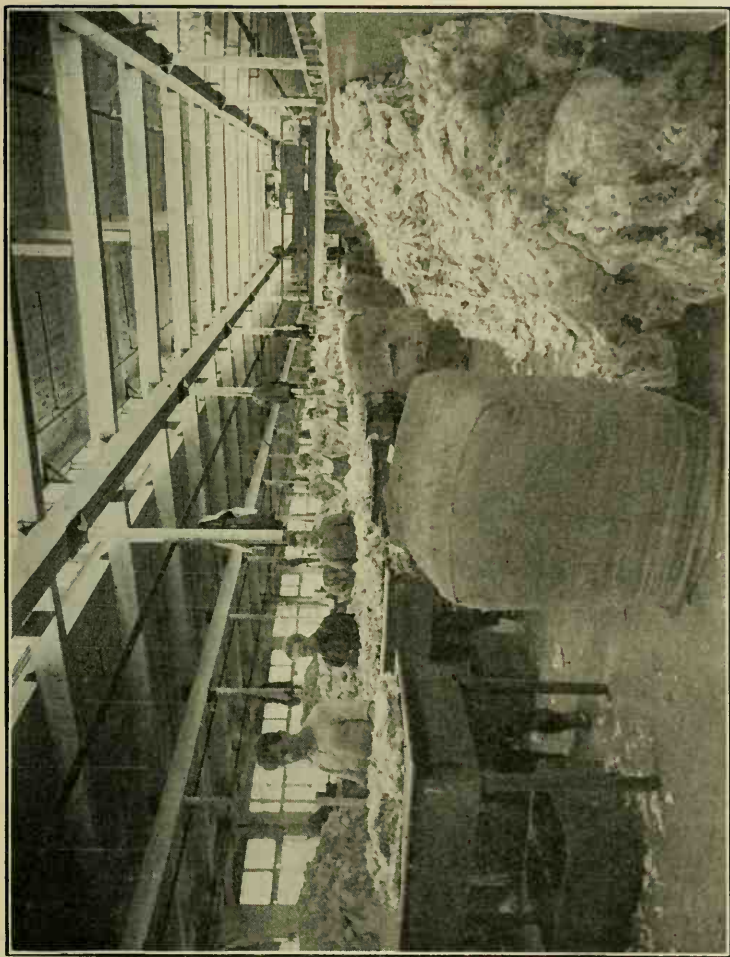
Fleece with parts marked showing —

- | | |
|---------------------------|--------------------------|
| 1, 1 — the best wool | 3, 3, 3 — the third best |
| 2, 2, 2 — the second best | 4 — the coarsest wool |



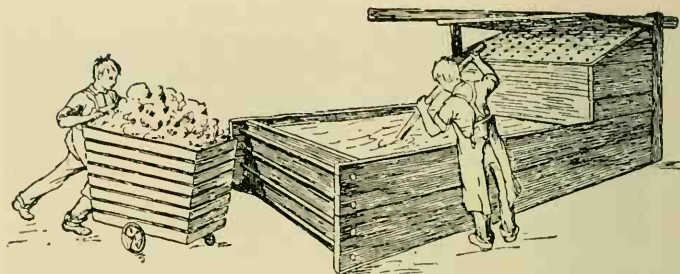
From "Woolen and Worsted Spinning," by Miles Collins.

Two old-style wool-sorter's benches, with a worker at one of them.

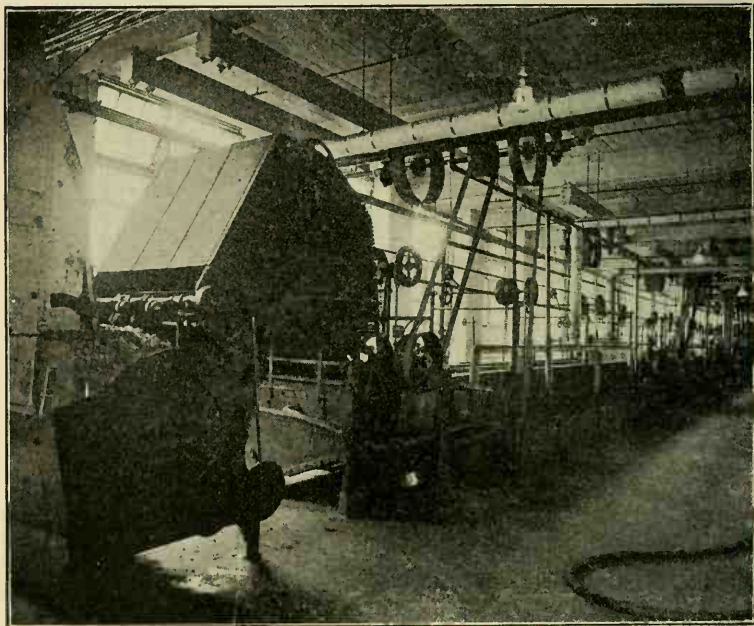


© American Woolen Company, Boston, Mass.

Wool sorting and classing in a modern factory.

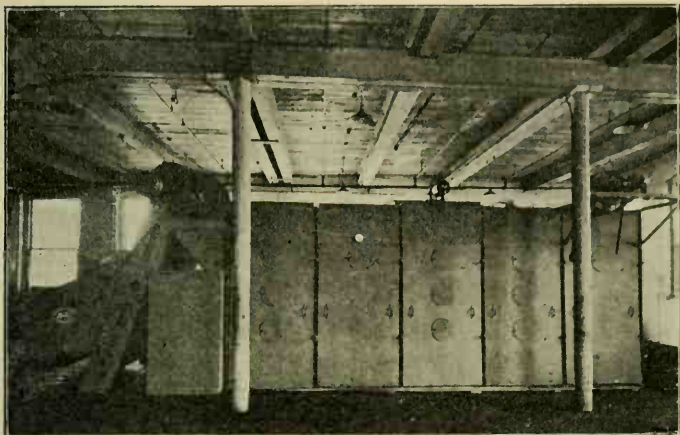


From "Woolen and Worsted Spinning," by Miles Collins.
An old-style wool-washing machine.

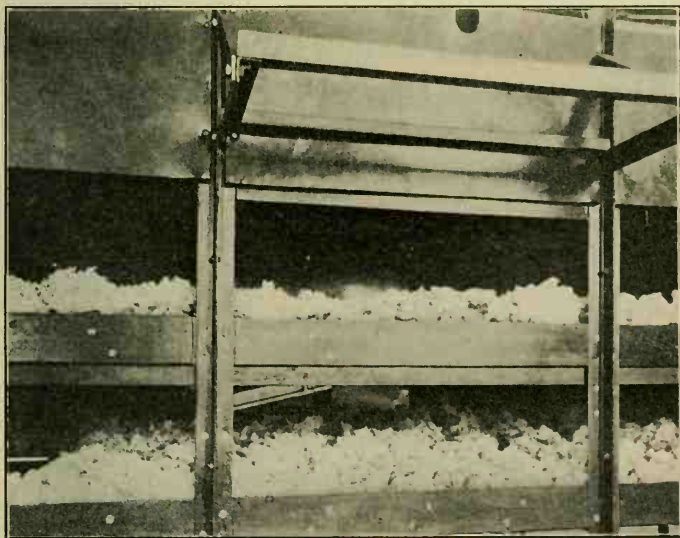


© American Woolen Company.

A modern wool-washer.



Courtesy of the James Hunter Machine Company, North Adams, Mass.
An up-to-date wool-drying machine.

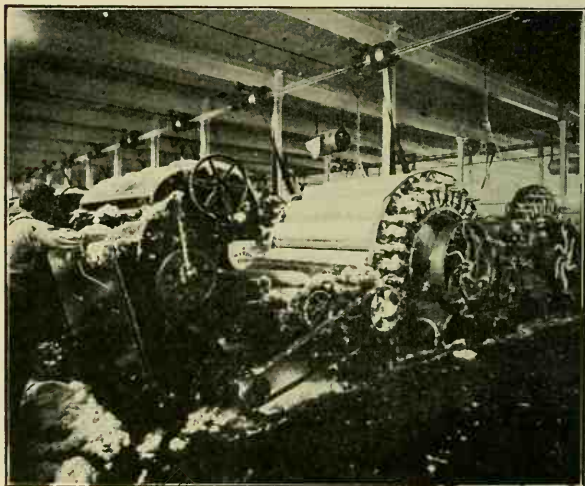


Courtesy of the James Hunter Machine Company, North Adams, Mass.
One part of this machine, open.



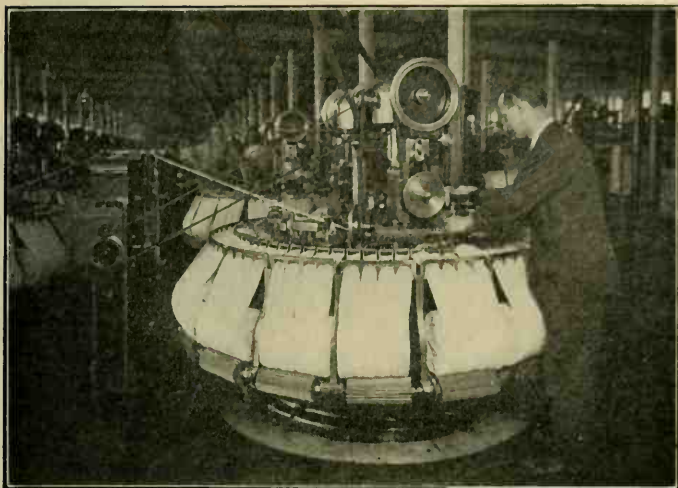
Courtesy of Edith S. Watson.

Using a pair of hand-cards to separate the fibers of wool
and take out knots, burs, seeds, etc.



© American Woolen Company.

The way wool is carded today, in a large factory.



© American Woolen Company.

A modern combing machine.



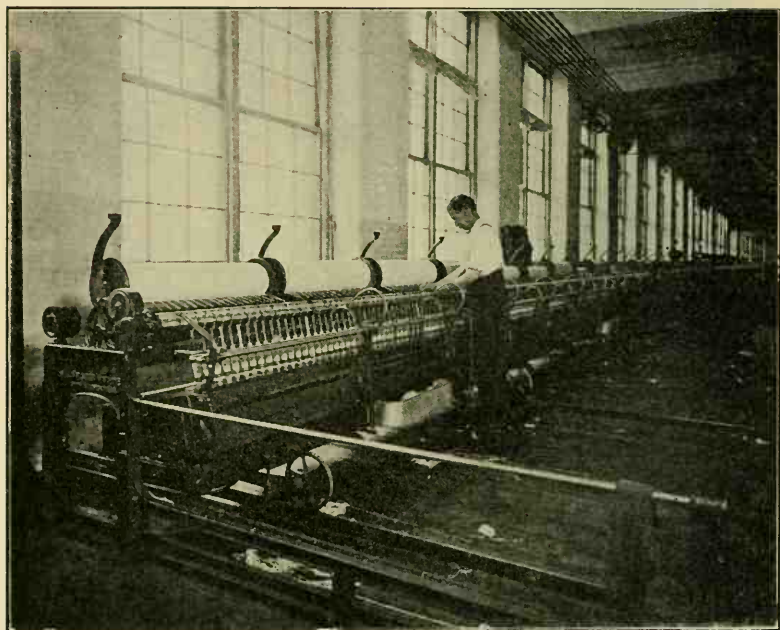
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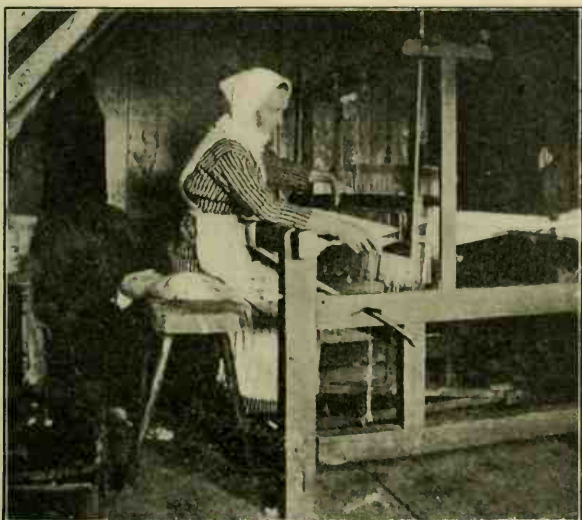
From "On the Wool Track," by C. E. W. Bean.

1. A woolen thread, made from carded wool.
2. A worsted thread, made from wool which was combed after carding. What did the combing do to it?



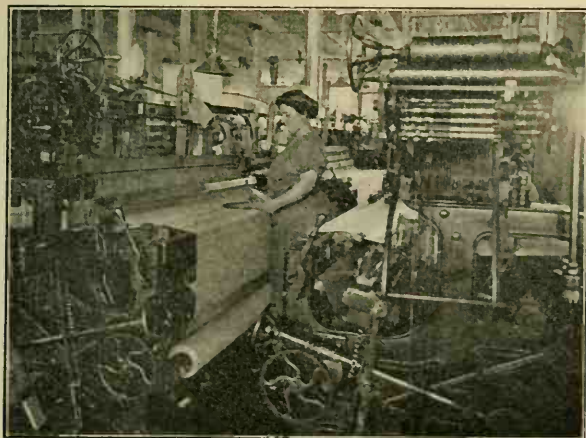
© American Woolen Company.

Spinning frames at work in a large factory.



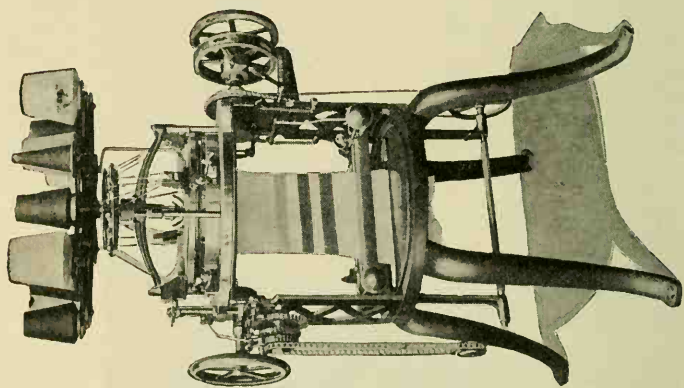
Courtesy of Edith S. Watson.

Weaving on an old hand-loom.



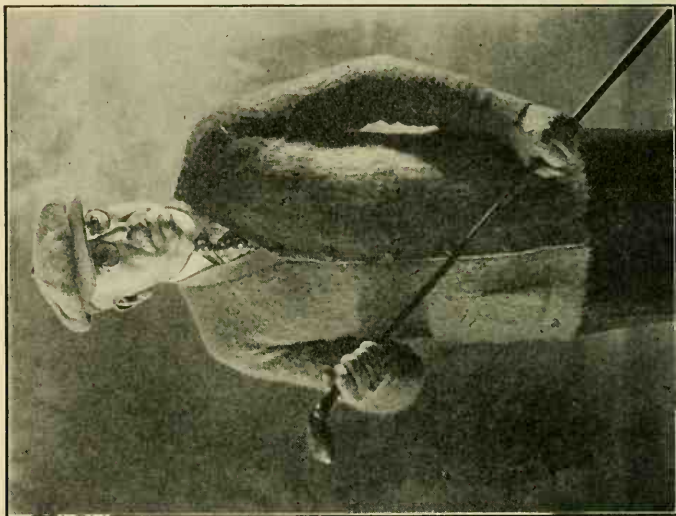
© American Woolen Company.

Weaving on an up-to-date loom.



Courtesy of the H. Britton Company, Frankford, Pa.

A knitting machine, making a scarf.



Courtesy of the Knitted Outerwear Bureau, New York City.

A sweater, made on a knitting machine. Who do you think is wearing it?

What fun it was to write the story which the pictures told! Johnny wanted so much to get that sweater for Grandfather that he worked harder than any of the other children.

When the Wool Man said, "Johnny Everybody gets it!" the whole family danced with joy. They could hardly wait to give Grandpa his sweater and to tell him the story which Johnny wrote on Wool Road that day. Johnny's story was never printed; so the boys and girls who read this book must tell their own stories of these pictures.

VI. FUR ALLEY

FURRY THINGS ON A VACATION

"I'm very tired of carrying this fur on my arm," said Mother Everybody. She turned to the floor-walker. "Where shall I go to make arrangements for storing my fur?" she asked him.

"Turn to the left, and walk till you see the aisle marked 'Fur Alley,'" he said, cheerfully.

Fur Alley was one of the busiest parts of the store that day. Many people, like the Everybodys, were ready to give up their furs, since spring had come. Besides, they had all seen the advertisement saying there would be something new and strange on Fur Alley on the opening day.

At the entrance to the Alley was a big sign —

ARE YOUR FURS GOING
TO OUR COLD ROOMS FOR
A SUMMER VACATION?

TAKE THEM TO THE ANIMAL THAT GAVE THEM TO YOU.



*Courtesy of the American Museum
of Natural History.*

A squirrel.



*Courtesy of the Department
of Agriculture*

A skunk.

All along the aisle were stuffed animals of more kinds than you will see in this chapter. Near each animal hung furry things of many kinds, made from the skins of its brothers and sisters. On the next page you will find pictures of a few of these useful and beautiful things.

If these stuffed animals could only talk, what interesting stories of their lives they could tell! They'd tell of their homes in the forest, or in the cold, snowy North. They'd tell how hard they must often work to find food. They'd tell how they take care of their babies. They'd tell about their relatives, their friends, and their enemies. They'd tell how they would like



Coat, made of natural muskrat fur.



Mother Everybody's fur scarf.



A raccoon muff.

Courtesy of Franklin Simon and Company.

us to treat them. They'd tell how they are of use to man while they are alive, or perhaps how they harm him. They'd tell how they are made to give up their lives so that we may have their beautiful skins to keep us warm or to be in style.



Courtesy of the Department of Agriculture.

The northern muskrat, whose fur makes Hudson seal. The long hairs must first be pulled out and then the soft under-fur is dyed.

Perhaps while you are visiting Fur Alley with the Everybodys you'd like to hear at least one of these stories. Let us pretend that these animals can talk. This might be one of the stories they would tell.

"We are called fur-bearing animals. The finest furs come from those of us who live in very cold re-



Courtesy of the American Museum of Natural History.

The true seal, found near Alaska.

gions. The coats of the animals of warmer places are not so thick and silky. Can you children see any reason for this?

“Some of us, like the seals, otters, and beavers, live in the cold waters and on the ice of the Far North. Nutrias, whose fur is much like that of beavers, live in the cold rivers of southern South America. The best fur of these animals is on the belly. But those of us



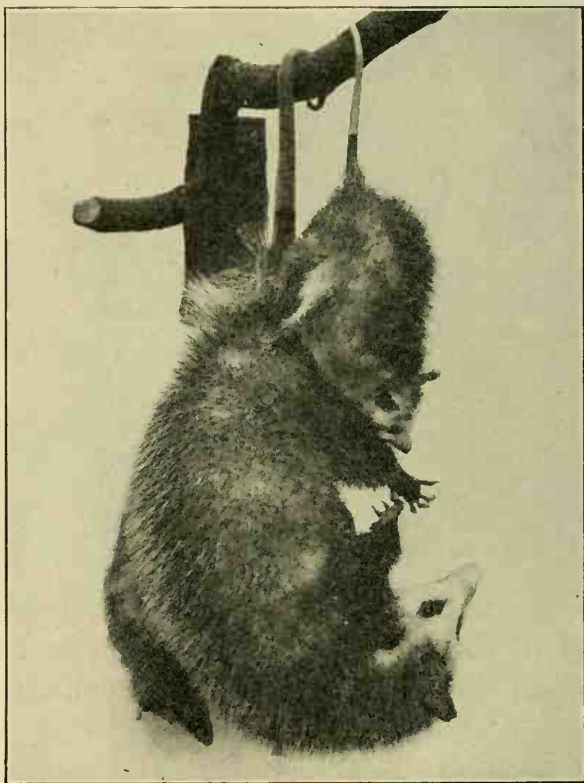
Courtesy of the American Museum of Natural History.

A mole, in his burrow.

who live in the woods and fields have our thickest, finest fur on our backs. Why do you think this is so?

“The men who hunt us do not often shoot, because bullet holes would spoil our fur coats. They usually catch us in traps. Sometimes we suffer a long time before the trapper comes to see whether he has caught anything. Some kind people are trying to make these hunters use a trap which will kill the animal at once. One way of doing this is to have poison gas in the trap.

“As soon as possible after we are dead, our skins are



Courtesy of the American Museum of Natural History.

A mother opossum and her baby.

carefully taken off and dried, or perhaps salted. Then they are sold to people called furriers, who have many things done to the skins or pelts to get them ready to be made into coats or caps or neckpieces or muffs.

“The furrier tries to keep in the skin as much as possible of the oil that was there while the animal was alive. The skins are put into a bath of something like soda or lye, which softens them. After this bath, a wooden tool with a dull edge is used to work out the moisture. Then the skin is drawn over a straight, dull-edged knife. This scrapes off any flesh or fat that may be left on it.

“Some grease is then rubbed into the skins, to take the place of what has been taken out by the work already done. The next step is to put the pelts into a sort of metal barrel, called a ‘drum’. This is partly filled with dry, fine, hard sawdust, and is heated a little. The drum has paddles in it, somewhat like those of a washing-machine or an ice cream freezer. These beat the skin gently as the drum slowly turns round and round.

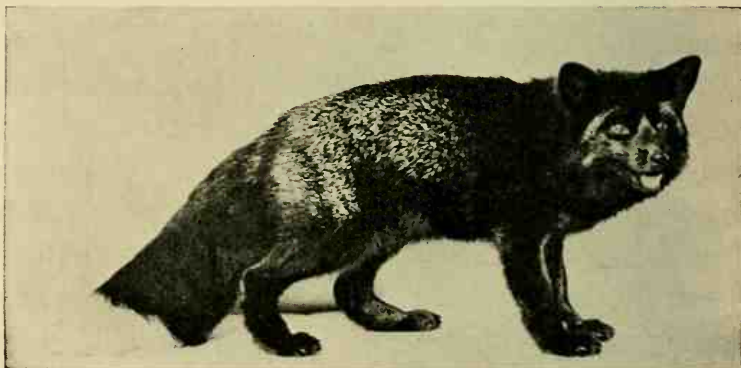
“The skin comes out of the drum quite clean and soft. Then it is laid upon a leather cushion stuffed with horsehair, and is tapped with smooth, thin canes till the little hairs all stand up evenly.

“The pelts are now sent to the fur manufacturers, where they are cut, pieced together, and made into garments of various sorts. The piecing used to be done by hand, and it was very slow work. But in 1890 a

machine was invented which sews fur faster, more cheaply, and better than it can be sewed by hand."

It was not long before the Everybodys spied a fox, a beautiful fellow.

"Is he an old fox, Mother?" asked Sarah. "He seems to be getting gray."



Courtesy of the Department of Agriculture.

A silver fox. Can you find the silver tip of his tail?

"No, he is a silver fox. Most of the silver is in the tip of his tail, but some is sprinkled over his body."

The clerk said to Mrs. Everybody, "Put your fur on the fox and see what happens!"

No sooner had this been done than the fox started off toward a door at the end of Fur Alley. No one saw the clerk touch a button, and the way the animal trotted off surely looked like magic.

Over the door where the fox stopped was a sign saying :

NO ADMITTANCE
DANGER

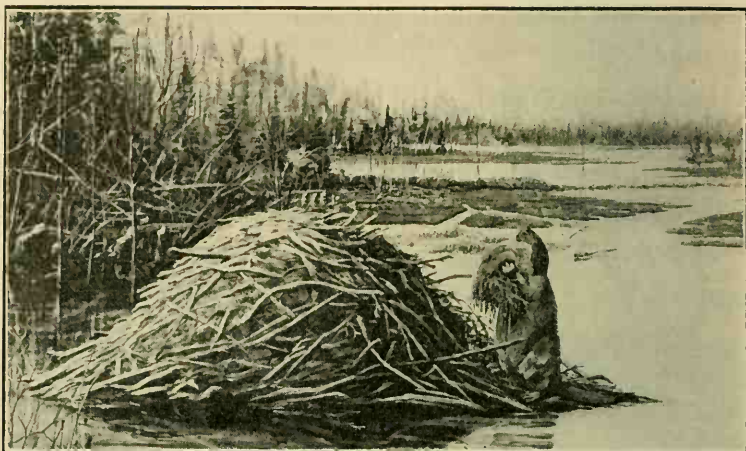
Nell said to the clerk who stood beside the door, "Why may we not go in with the fox? What is the danger?"



Courtesy of the American Museum of Natural History.

The gray wolf, sometimes called the timber wolf.

The man answered, "The place where fur pieces go for a vacation is too cold and dark for people. You would have to put on your winter clothes, if you were to go in, for it is cold enough there to freeze you. All



Courtesy of the Department of Agriculture.

A beaver, building his house. See his flat tail.

summer the furs can dream that they are back in their homes in the Far North, or in the dark woods. Behind that door they are safe from their enemies, the moths. There the warm sun cannot bleach them. There they are kept moist and soft and beautiful."

"But," said Mother Everybody, "what should the people who cannot afford to send their furs on a vacation like this do to keep them safe?"

The man handed her a little book, saying, "This will answer your question." The book was called *Vacations for Furs*. Of course it told first all the reasons why furs should go to the cold storage warehouse



Courtesy of the American Museum of Natural History.

A raccoon at the door of his home.

for the summer. But it had another chapter for the stay-at-homes, with a few directions for keeping furs in good condition in the winter as well as in the summer. These are the most important things it said :

1. Do not leave furs in strong sunshine too long.
2. When furs are wet, do not dry them in the sun, or on steam pipes, or before an open fire. Let them dry in a current of air.
3. If you cannot put your furs into cold storage, shake them well, and then wrap them in linen. Keep them in a cool, dry place and look at them carefully once in about five weeks, to make sure that they are free from moths.



Courtesy of the American Museum of Natural History.

A wood hare, or rabbit, and her nest.

While the Everybodys were looking at the book, the clerk took Mother's fur from Foxie's back, put a tag on it, and laid it on a table. Then he returned to his place by the door to wait for the next piece of fur to be brought for storage.

The family left Fur Alley so interested in all they had seen and heard there that they decided to find out for themselves some of the other stories that the furry creatures might have told if they had been able to talk. Can't you do it before the Everybodys do?

VII. LACE PLACE

COBWEBS THAT WE CAN WEAR

"Aren't we going to get anything for Grandma to-day?" cried Johnny, who was very fond of his Grandmother.

"Well, what would you like to buy for her?" asked Mother.

"I believe she'd like a new collar," said Sarah. "I noticed yesterday that the one she was wearing had some holes in it that did not belong to the pattern."

"Now that is just what I have on my list for her," said Mother. Going up to a floorwalker, she said, "Which way to the laces, please?"

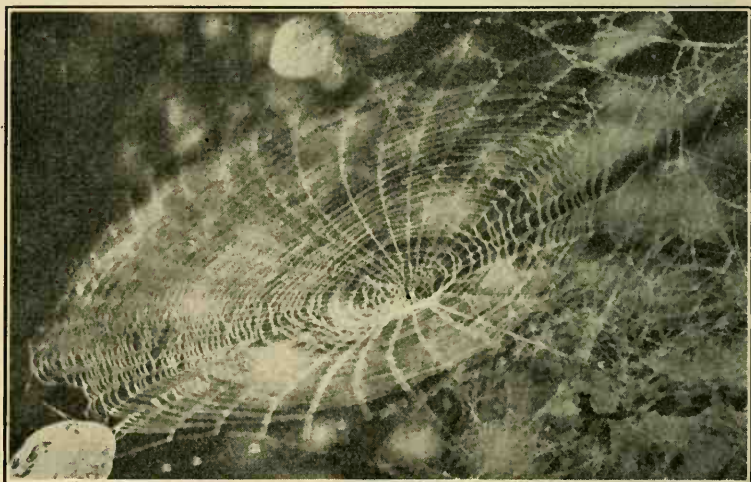
"This way, madam." He pointed to a corner of the store which looked like fairyland.

When the Everybodys reached Lace Place, they found a large tree in the center. A lace tree, I suppose you might call it, for on it hung laces of all kinds and all prices. There were wide laces and narrow laces, heavy laces and fine laces, laces sold by the yard and laces sold by the piece, laces for trimming clothes and laces for trimming pillowslips and bureau-covers, handmade

laces and machine-made laces, bobbin or pillow laces and needle-point.

The tree was crowned with a strip of black card-board, bent into a circle. On it, in lacy white letters, were these words: COBWEBS YOU CAN WEAR.

This crown turned round and round all the time, so that the words on it could be read by everyone who could see the tree at all.



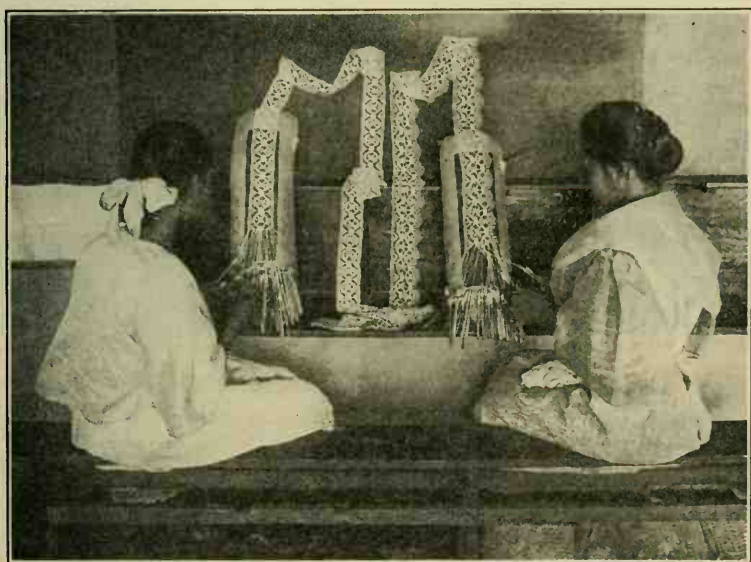
Courtesy of the Nature Magazine.

A cobweb which you can *not* wear.

“What a pretty name for lace!” said Mother. “It is a good name, for some laces are as fine as cobwebs, and many of them show cobwebs in their pattern.”

"How queer it looks to have laces on a tree!" said Sarah.

"There is a tree that really bears lace," said Mother. "But the layers of lace grow just inside the rough bark; it might be called an all-over lace! Perhaps they have some of it here."

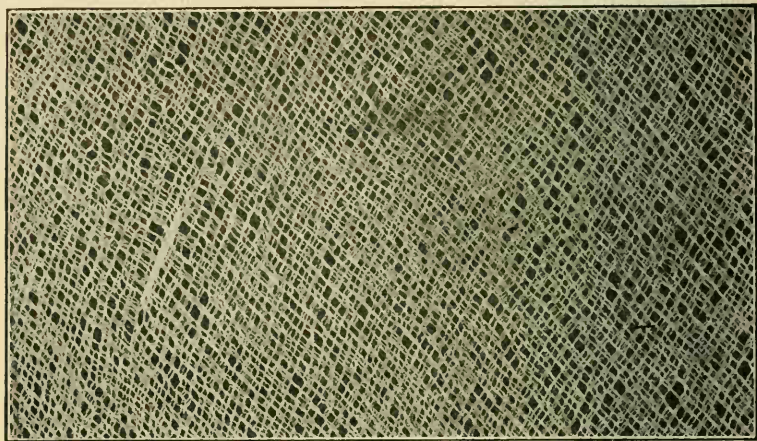


Courtesy of the Bureau of Insular Affairs.

Philippine girls, making bobbin lace.

Under the tree there were two girls from the Philippines making pillow lace, as you see them in this picture. One of them looked up from her work and said,

“You will find some lace from the lace-bark tree in the show case over there.” After the Everybodys had looked at this, they came back to watch the lace growing on the pillows.



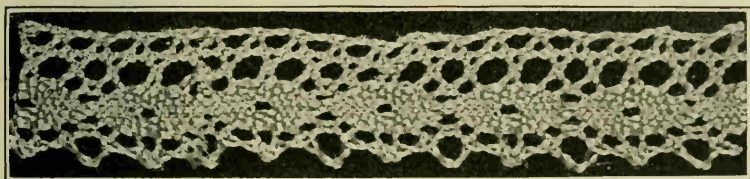
Courtesy of the Botanical Museum, University of Pennsylvania.

Two or three layers of lace bark.

As the fingers of the older girl flew among the bobbins, she talked to the people who were watching her. This was her story.

“People began to make lace more than four hundred years ago. At first, and indeed for a long, long time, all lace was made by hand. It was only a hundred and fifteen years ago that the first good machine was invented. Since then, better and better machines have been made.

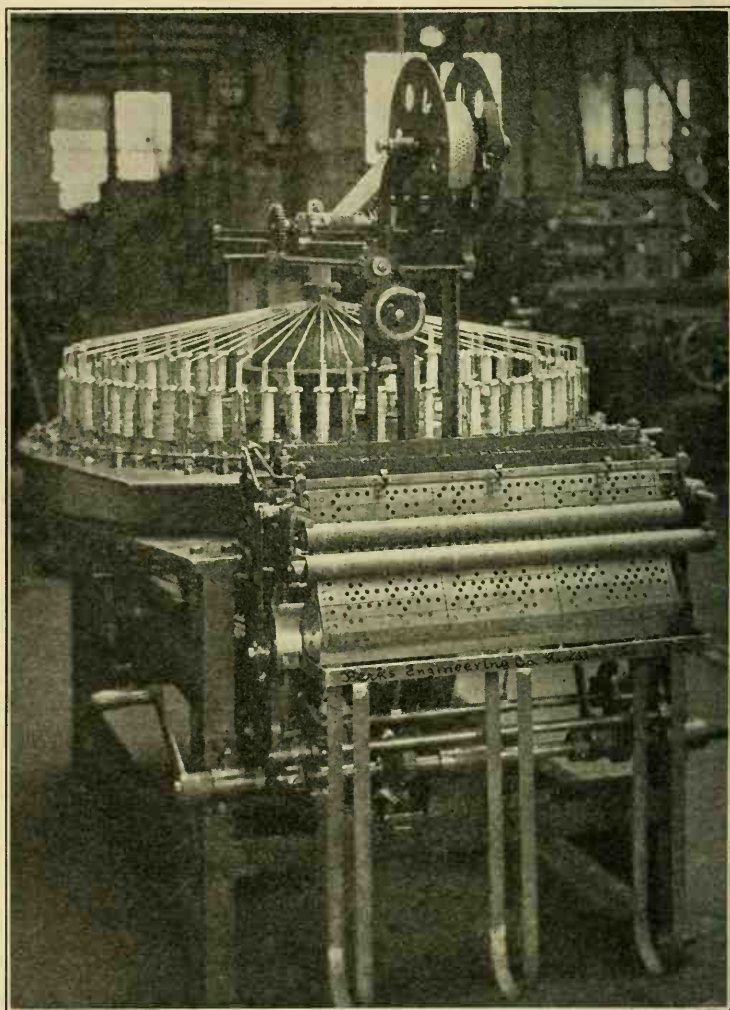
The largest of these machines makes more than three hundred pieces of narrow lace at one time. This machine can use as many as eight thousand threads running lengthwise, called warp threads, and four thousand threads on bobbins. These bobbins are really a sort of shuttle. They move back and forth, making the pattern. Some machine lace is so well made that it is hard to tell that it is not handmade.



Cluny lace, made on the machine shown on page 84.

“Much later, about the year 1900, a very different lace-making machine was invented. This uses no warp threads. Its bobbins or shuttles are arranged in a circle. See that large picture hanging on the wall (page 84). Can you count the bobbins or shuttles on it? Sometimes there are as many as one hundred and twenty-four.

Each bobbin can be made to travel in and out among the others, all the way around these machines. The bobbins can be made to move in many other ways, back and forth, round and round, in and out, to twist or braid



Courtesy of Robert Carl Rahm.

A lace-making machine.

the threads. The way these shuttles move depends on the holes in the cards which you see hanging from the machine. These cards are called a 'jacquard.' Such cards as these are used in weaving tablecloths and napkins, and also in weaving some kinds of figured silk.

"If you have ever seen a player piano playing, you know that the holes in the long roll of paper make the 'pattern' of the music. Just so, the holes in the jacquard make the pattern of the lace, and of the napkin, and of the figured silk.

"The lace we are making is called bobbin or pillow lace, and there are many kinds of it. As you see, it is made with many threads, each of which is wound

on a bobbin. The lace now on our pillows (page 81) is called Cluny. We twist and braid these bobbins with our hands to make the pattern. The machine in the



Courtesy of Metropolitan Museum of Art.

A pillow for making bobbin lace. What are the little silk bag and the square cushion used for?

picture is like a person with many hands, sometimes as many as one hundred and twenty-four.

“Perhaps you’d like to try to make some lace yourselves. Here are the directions for making bobbin lace.

“1. Draw the pattern on heavy paper.

“2. Stretch this paper over a pillow.

“3. Prick the pattern along the lines of the drawing.

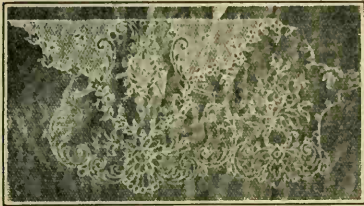
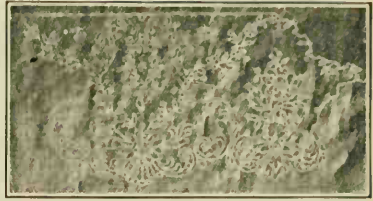
“4. Stick pins through these holes, very close together.

“5. Fasten all the bobbin threads at one end of the pattern. Then these threads are crossed and recrossed, passed over and under one another, around the pins, so as to form both the pattern and the fine network.

“All kinds of handmade lace that are not made with bobbins on a pillow are called ‘needle-point lace,’ or sometimes just ‘point lace.’ They are made with a single thread and a needle. Many kinds of point lace are made in Belgium. Thousands of people there spend their lives in this work. These are the directions for making needle-point lace.

“1. Draw the pattern in ink on heavy paper.

“2. Fasten this pattern on a piece of stiff linen, so that it may not be torn while you are working on it.



Courtesy of the Metropolitan Museum of Art.

The making of a piece of rose-point lace, beginning with the pattern. Can you tell what has been done in each of the other five pictures?

“3. Make the skeleton pattern by laying threads — two, three, four, or more — along the lines of the pattern. Fasten these down by stitching over them, through both paper and linen.

“4. Fill in the spaces between the lines, using a threaded needle.

“To find out whether a handmade lace is needle-point or bobbin, you must look at it very closely with a magnifying glass. In the needle-point you will find the loops of buttonhole stitches; in the bobbin laces, the threads are braided or twisted. The pictures on page 89 show these differences, and you may be able to see them in some of the other pictures.”

“Would you like to know how you can tell whether lace is handmade or machine-made?”

“Oh, please tell us that!” said half-a-dozen people at once.

“There are several differences :

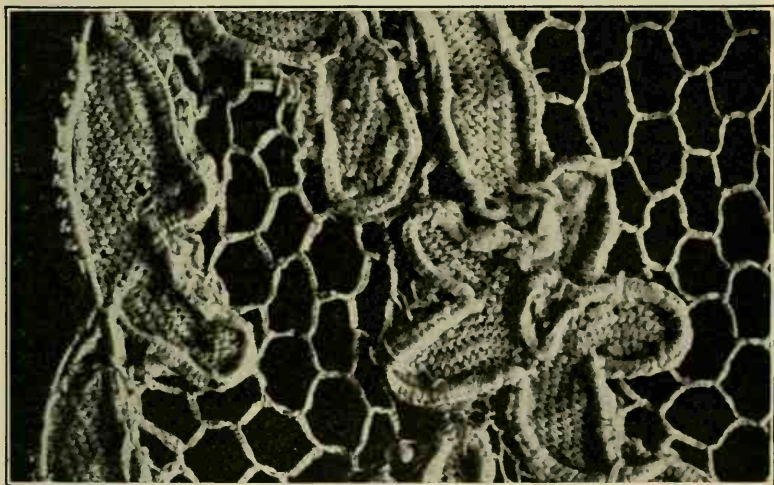
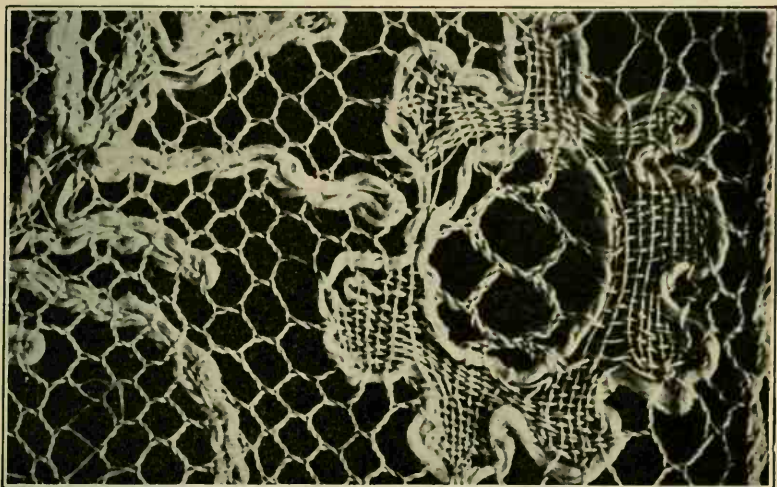
“1. The threads in machine-made lace are flattened.

“2. The tiny holes or meshes are all exactly alike in machine-made lace, but the handmade meshes are always a little irregular.

“3. No buttonhole stitches can be made by a lace machine.

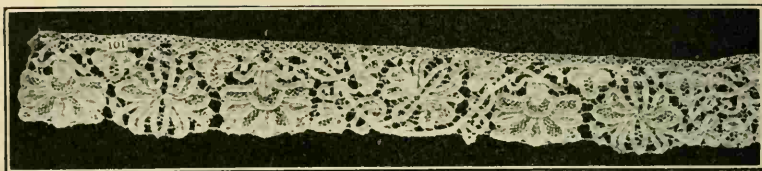
“4. The threads in a handmade bobbin lace come undone very easily when the lace is cut.”

The Lace Lady then took down from the tree many different kinds of lace, and told their names. The first was the strip of Cluny lace on page 83, made on the machine shown on page 84. On page 90 are pictures of some of the other kinds she showed.

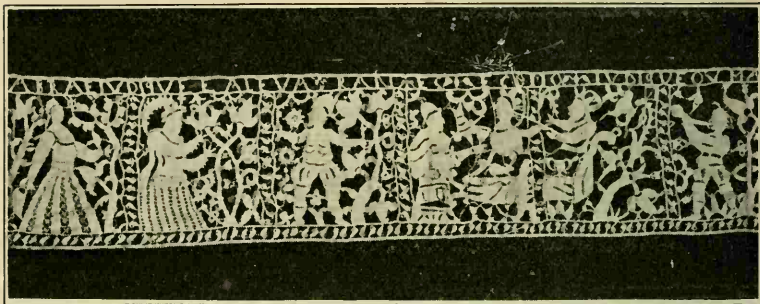


Courtesy of the Metropolitan Museum of Art.

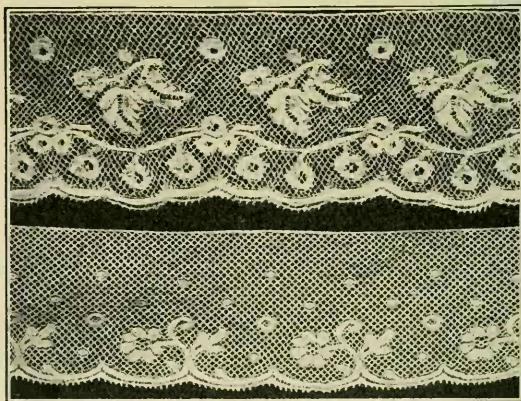
1. Bobbin lace, with threads twisted or braided. (Above.)
2. Needle-point lace, with buttonhole stitches. (Below.)



A piece of very old needle-point lace.



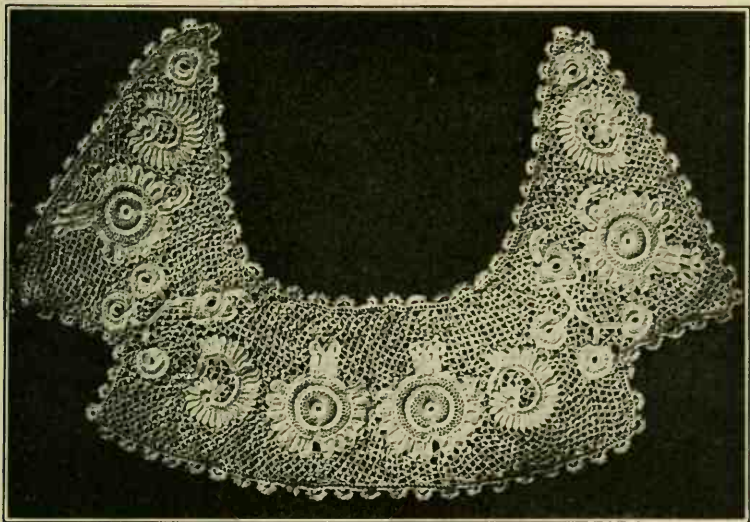
Old needle-point lace which tells a story.



Machine-made and handmade Valenciennes lace.
Which is which?

Courtesy of the Metropolitan Museum of Art.

Then, to the Everybodys' surprise, the lady reached high up into the top of the tree and pulled down two beautiful lace collars. She said, "I thought I heard a boy say that he wanted to buy a lace collar for his Grandma. Which of these does he like?"



Courtesy of the Bureau of Insular Affairs.

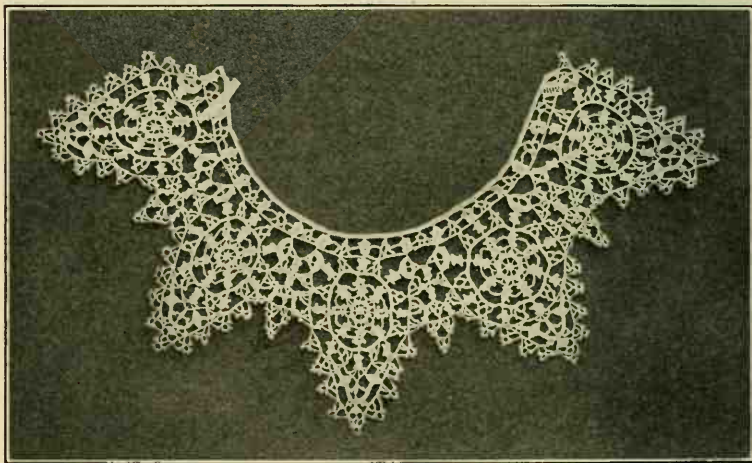
An Irish crochet collar.

The Everybodys all liked the collars, but Mother said that if she bought one of those, she would have to cut off the rest of her shopping list. But not one of the children thought that a machine-made collar would be good enough for Grandma. What should they do? What *could* they do?

"She would not like a very wide collar," said Sarah.

"She would not like a very fancy one, either," said Nell.

"Suppose, when you go home, you draw a pattern for a very simple little collar," said the Lace Lady.

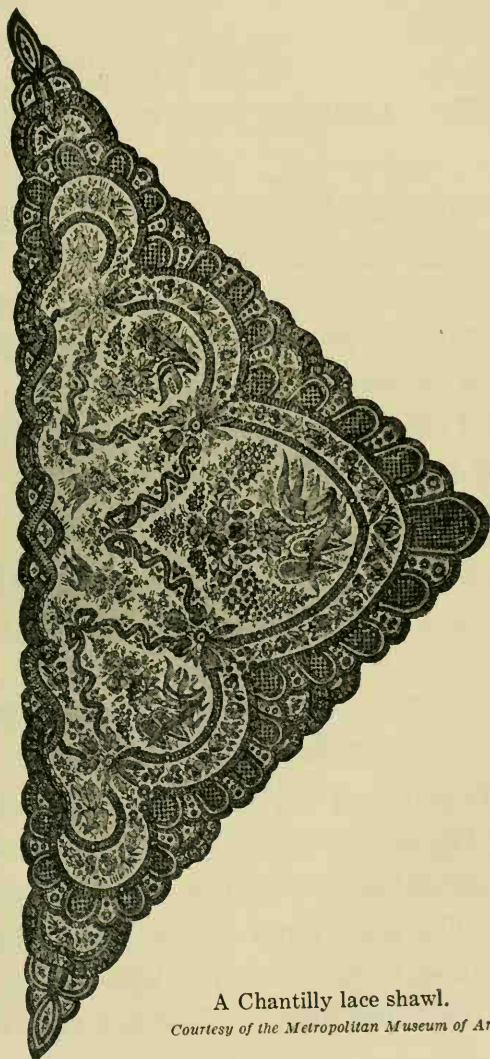


Courtesy of the Metropolitan Museum of Art.

An Italian crochet collar.

"Make it just wide enough and just long enough to fit Grandma's dress. Then bring it to me, and I think I can have our pillow lace makers make a collar from it that you can afford to buy."

Suppose the children who read this story draw the collar they would like to have for their own Grandmother. They might put some spider webs in it.



A Chantilly lace shawl.

Courtesy of the Metropolitan Museum of Art.

VIII. LEATHER CORNER

THE LEATHER TWINS' PICTURE PUZZLE

Johnny saw it first. Perhaps he was the first to notice it because his turn on Mother's list had come. Mother had said, as they thanked the Lace Lady, "Now we must find a pair of shoes for Johnny."

Johnny really smelled Leather Corner before he saw it. Then he saw a beautiful stuffed cow, nodding her head, and heard the bell that hung from her neck. He called to the rest of the family, and they all read the sign that was fastened to the cow's horns.

COME TO LEATHER CORNER!

GET INTO THE GAME!



SEE THE ADVENTURES OF THE LEATHER TWINS,
TOLD IN A PICTURE PUZZLE.

The Everybodys were out for a good time, so they followed the arrows to see the pictures. They found, in one part of Leather Corner, a sort of room without a ceiling. The high fence which made this room was partly hidden from the people inside by curtains which covered the upper half. Across one corner was a large

white screen, and the chairs faced this corner. As soon as the Everybodys were seated, a pair of boy's shoes was flashed on this screen. They were much wrinkled, much torn — quite worn out. Below the picture the Everybodys read, "Here are the famous Leather Twins. They have traveled far. Before they go away forever, they want to tell you their story."

A little bell rang, and the curtains on the fence dropped, showing all the pictures that are printed in this chapter. Each picture, as you see, had a single letter or two letters of the same kind below it, but not a word to tell its story.

As the Everybodys looked about to see where the story began, a little man, dressed all in leather, stepped out before the screen and said, "Girls and boys, ladies and gentlemen, these pictures are all mixed up. That is the puzzle. But in a minute you will see on the screen the story of the making of the twins, told in words, and the parts of this story are all in order. Each part of the story has a picture, somewhere on the wall. Who will be the first to match the pictures to the story?"

This is the story that came upon the screen as the worn-out twins faded out.

1. This Indian is skinning a deer.
2. Here he is shaving or scraping the hair from the

skin, after he has soaked and washed it and cut off all the bits of flesh and fat.

3. Now the Indian is wringing water out of the skin.

4. Here he is stretching and pulling the skin into shape after the wringing.

5. And now he is rubbing the brains of the deer, mixed with water, into the skin to make it soft.

This is one of the ways in which man first tanned skins or made them into leather.

6. This group of buildings is the largest sole leather tannery in the world. It is in New York State. Six thousand two hundred "sides" of leather are tanned here daily. Four hundred and fifty workmen are employed. There are thirteen acres of floor space. Perhaps your teacher will tell you how many times the floor space of your school building could be fitted into the floor space of this tannery.

7. Each bundle of whole skins or hides is weighed before going into the tannery. There the hides are first well soaked and washed in water. Then each is cut into "sides," from head to tail.

8. This is a shed where the hides are soaked in lime to soften them and loosen the hair and flesh. See the large tanks or vats, set in the floor, making it look like a checkerboard.

9. The machine with sharp ridges running around its roller pulls the hair out of the hide by the roots.

10. Then the hides go to a "fleshing machine." One man runs the hide through a long slit in the machine. This scrapes off the flesh. The other man in this picture is getting the next hide ready to hand to him.

11. See that long row of "drums" holding the tanning liquid. The hides are turned round and round in these drums.

12. After the hides are taken from the drums they go to the wringer. Two men lift the hides one by one, and run them through this great big wringer, to squeeze out the tanning liquid which is still in them.

13. An oily liquid must now be worked into the hides to soften and color them. This is called "fat liquoring." Find the two drums which hold the fat liquor.

14. The hides are now hung in a loft to dry in heated air.

15. Then a man shovels wet sawdust on the hides, one by one, as they are piled up. The pile is covered with a cloth of some sort and left for two days.

16. Machines with long arms and metal rollers stretch and iron the dampened leather.

17. Each side of stretched leather is now tacked on a frame to dry.

18. The finest leathers are colored and finished by hand. Can you find three men who are doing this work?

19. Glazing machines are often used to make the leather smooth and glossy. The picture shows an alligator skin being glazed.

20. Bundles of leather from the tannery are sent to all parts of the world. Here you see a steamer being loaded with leather ready to be made into shoes and other things.

21. This is the way shoes used to be made by one man.

22. This is an old-time shoe shop, which still stands in Natick, Mass. The man who made shoes in it was elected Vice President, with Grant, in 1872. I wonder whether your teacher can help you find the interesting story of his life.

23. Victory Factory, in Johnson City, N. Y., is one of the biggest and best in the world. Here 19,000 pairs of shoes are made every day, by 2000 workmen. The floors, put together, would cover about $5\frac{1}{2}$ acres. Ask your teacher to tell you how many times your school-room floor would fit into that area.

24. A side of leather is generally divided into four parts, some of which are much better than others. The "bend" or "butt" is the heaviest and strongest part.

25. The picture of a foot shows the names of the parts that a shoemaker must measure.

26. The picture of a shoe shows the names of some of its parts, as used in shoemaking.

27. The drawing of a $9\frac{1}{2}$ foot skin shows how the patterns for "uppers" are laid on it. How much waste do you think there is here? How many different parts used in making shoe uppers do you see? How many of these parts can you find in your own or other shoes?

28. The parts of the upper used to be cut by hand, the workman running a sharp knife around the edge of the pattern laid on the skin. The "clicking machine," invented in 1908, cuts each piece with one motion. In the picture, the side of leather is seen lying on the table of the machine, with the man's left hand on it, while his right hand presses the long arm of the machine down on the sharp-edged pattern, or "die."

29. Hundreds of "hands," usually girls, stitch the parts together in the sewing room, and fit the lining to the upper leather. Find the picture of one of these girls at her machine.

30. During all this time, hands in other parts of the factory are getting the "insoles" and the "outsoles" ready to meet the uppers. Steel dies are used, and the part of the sole-cutting machine which presses the die down through the leather looks like a bridge. The machine shown in our picture was No. 12 in a room which held eighty machines just like it.

31. Both insole and outsole must have a little slanting slit cut all around the lower side, close to the edge. The line of stitching which holds the sole in place comes in this slit. Then the little flap of leather, which the "channeling machine" turned up when it cut the slit, is cemented down over the stitches so that they do not show. Do you see any use in having the stitches covered up? Can you find the workman who has "channeled" nearly halfway round one sole? He is holding another sole, ready to put it into the machine as soon as the first one drops out.

32. Now the "last," on which the shoe is put together, is needed. The shoe stays on this last until it is finished. Lasts are made of maple wood. What do you think the numbers on the one in the picture mean? And why do you think it is made with a hinge in the middle?

33. After the insole has been tacked on the last, the upper is laid in place, and the shoe is put into this ma-

chine. The workman in this picture is holding a handle or lever which will make the iron fingers of the machine grasp the toe of the upper and pull it over the last. Then other parts of the machine will tack it smoothly into place. The tacks are put in very lightly, so that they can be easily taken out later. The shoe must go through two other lasting machines to have the rest of the upper fastened down smoothly.

34. The "welt," a narrow strip of leather, is now stitched on through the edge of the upper and the slit in the insole. You can see the end of this strip hanging down, close to the workman's left hand.

35. Next, the outer sole is laid in place and cemented fast. Then the shoe goes to the rough-rounding machine, where a sharp knife is run around the sole to trim it to the exact shape of the last. Do you see the little strip which is being trimmed off? The outer sole is now stitched fast to the welt by another machine, not shown in these pictures. This fastens it firmly to the insole and the upper.

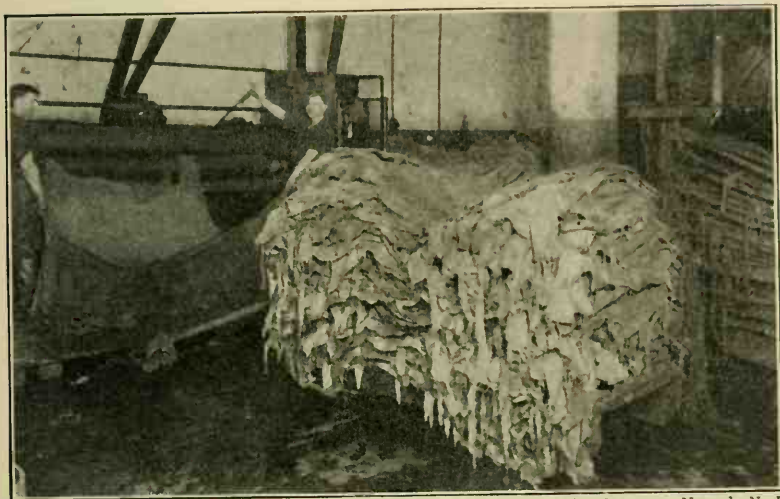
36. Now the shoe is ready for its heel. This was made while the rest of the shoe was being put together. The heel is set in place on the machine and the shoe is placed over it. Then nails are forced up through the heel to hold it on, and their points are turned over.

37. The edges of the heel and the sole are now smoothed down by being held against a wheel which is covered with sand-paper.

38. After the bottoms and edges of the sole and the heel have been polished, the last is pulled out. Now the shoe goes to the "treeing machine." This has four shoe-forms or "trees" standing out from its edges. Only three of them show in the picture, but you surely can tell where the fourth one is. Little brass rollers, heated by electricity, iron out the wrinkles in the shoes. You can see these rollers working on the shoe at the right. After about two minutes, the machine turns far enough to bring another shoe under these rollers. While the machine is not turning the man works on the shoe in front of him. In the picture he is rubbing off some dust or dirt. Then he will use that queer electric iron lying in front of him to smooth out any wrinkles which the rollers missed.

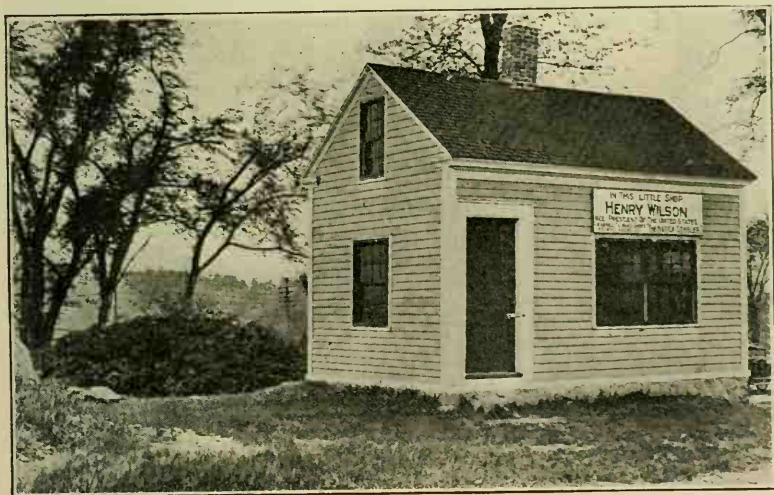
39. About three hundred and thirty-five different things must be done to make and finish a good welt shoe. We have described only a few of these. But our shoe is now ready to be packed for shipping. In the picture you see one shoe of a pair which a girl is wrapping in tissue paper and putting into a box.

Here are the pictures, ready for you to sort out.



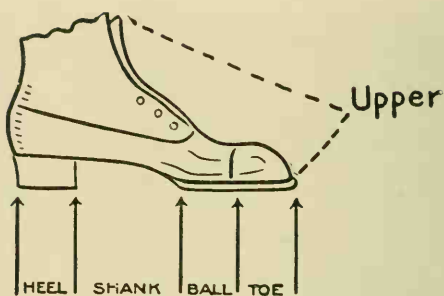
Courtesy of the Max Hertz Leather Company, Newark, N. J.

A



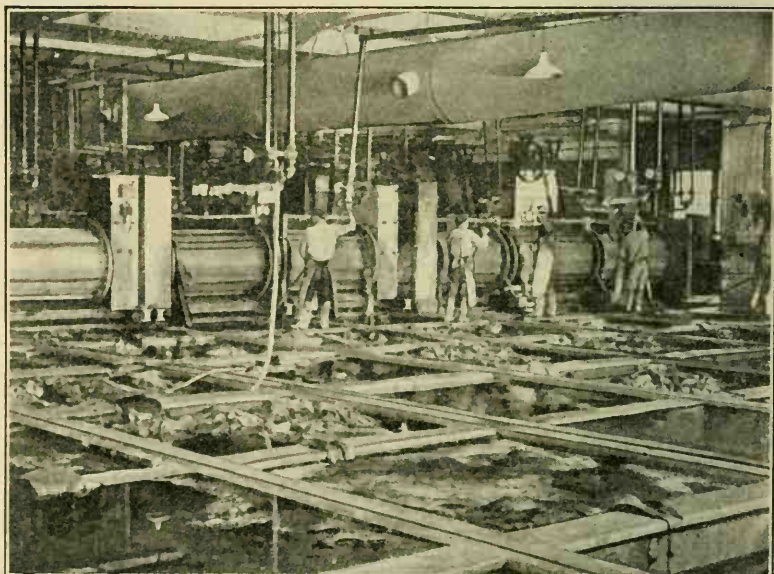
Courtesy of the Natick Bulletin Press.

B



From "A Manual of Shoemaking," by William H. Dooley.

C



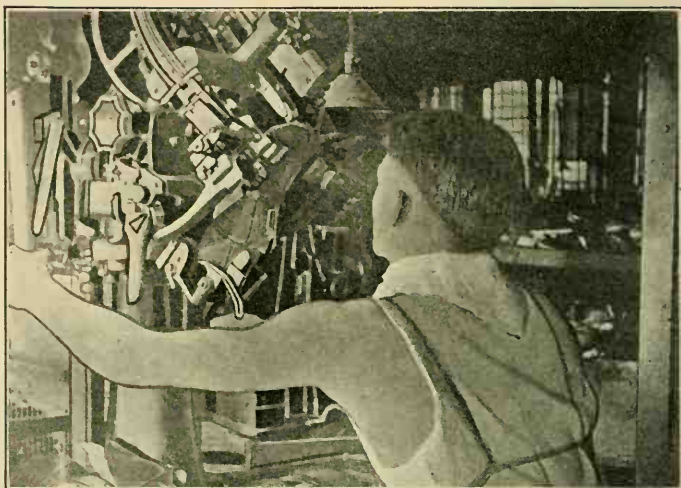
Courtesy of the Endicott-Johnson Corporation, Endicott, N. Y.

D



From the Report of the Smithsonian Institution for 1889.

E



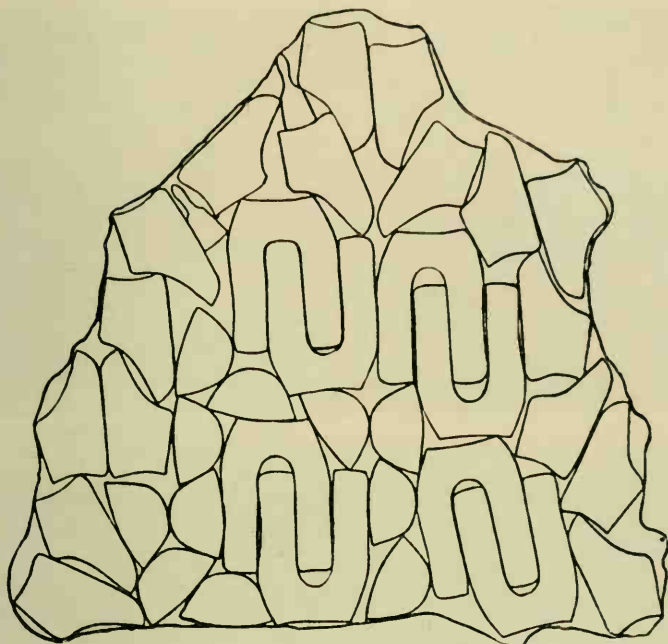
Courtesy of the Endicott-Johnson Corporation.

F



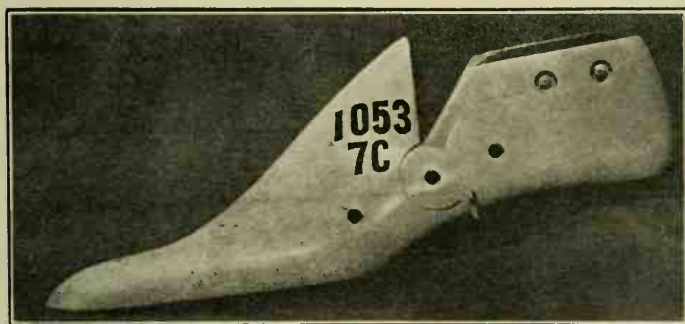
From "Goodyear Welt Shoes, How They Are Made." United Shoe Machinery Corporation.

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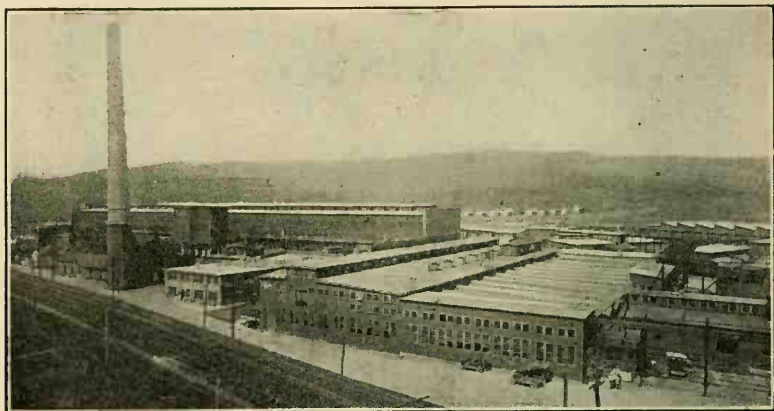
From "A Manual of Shoemaking," by William H. Dooley.

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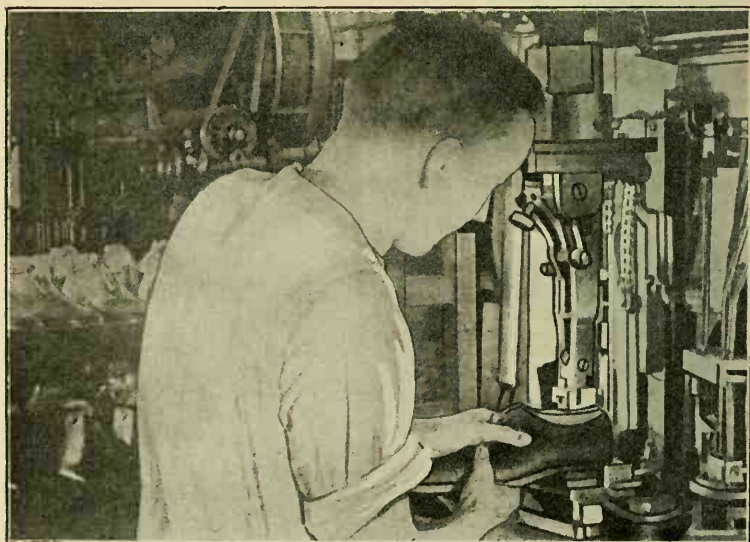
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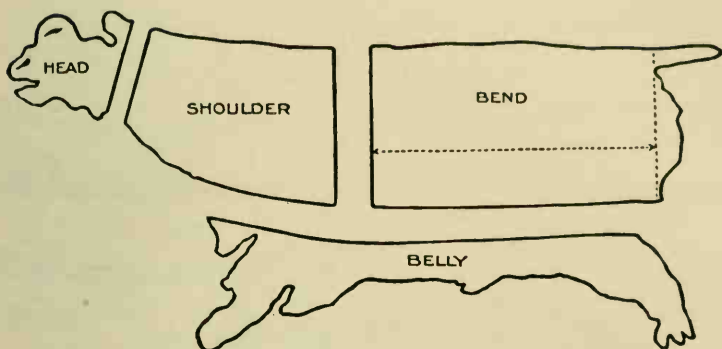
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From "A Manual of Shoemaking" by William H. Dooley.

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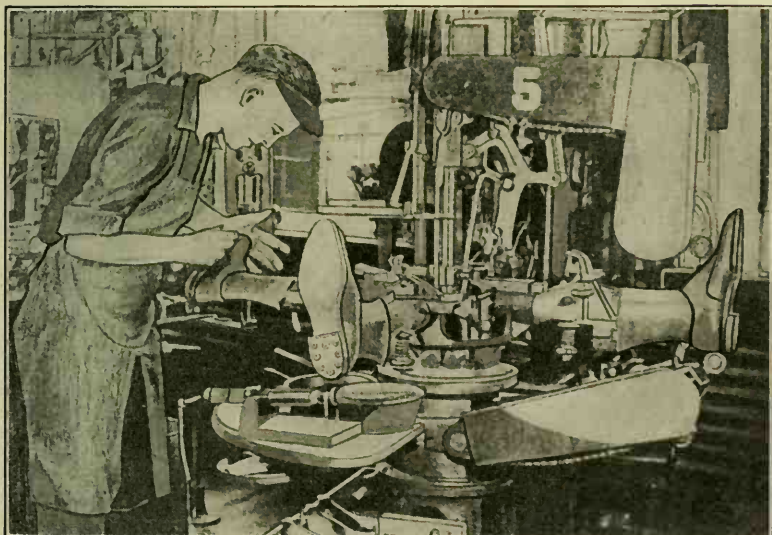


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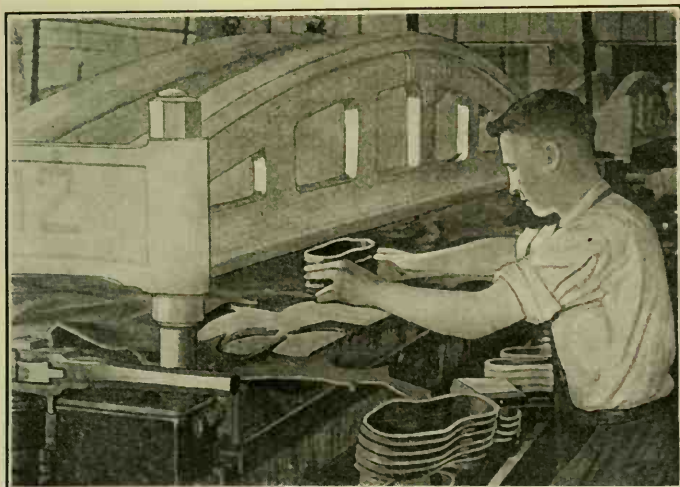


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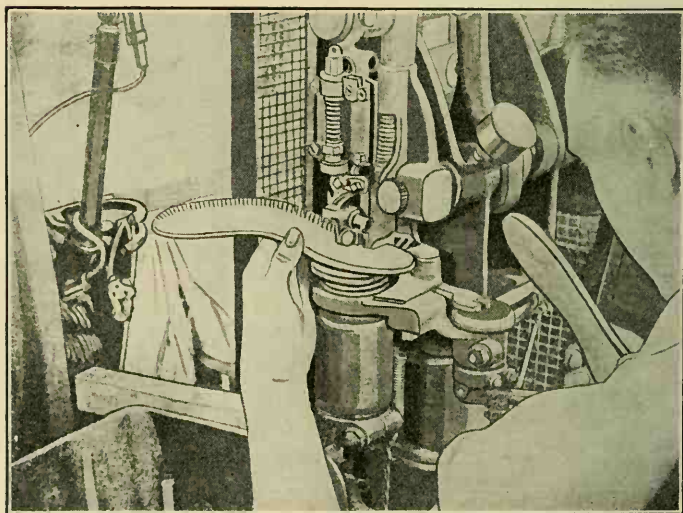
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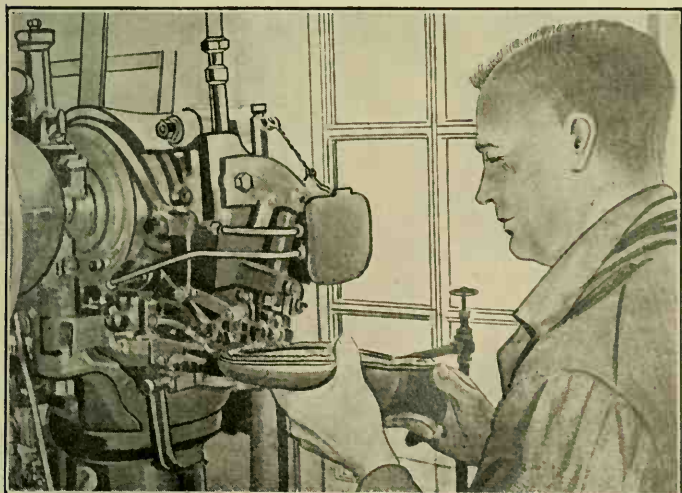
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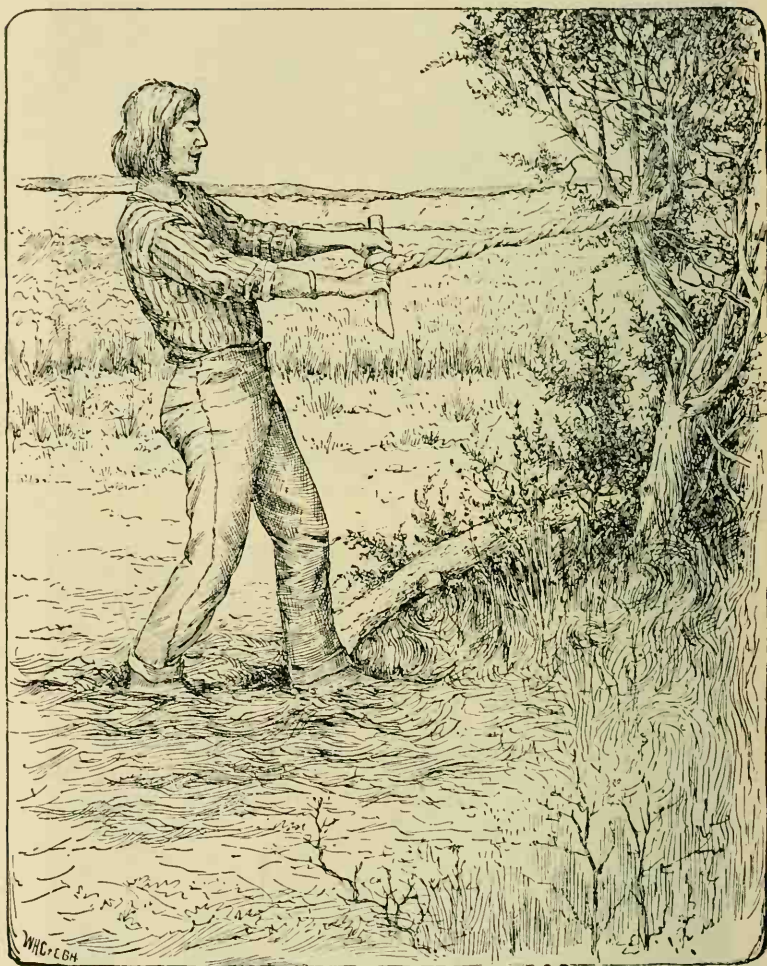
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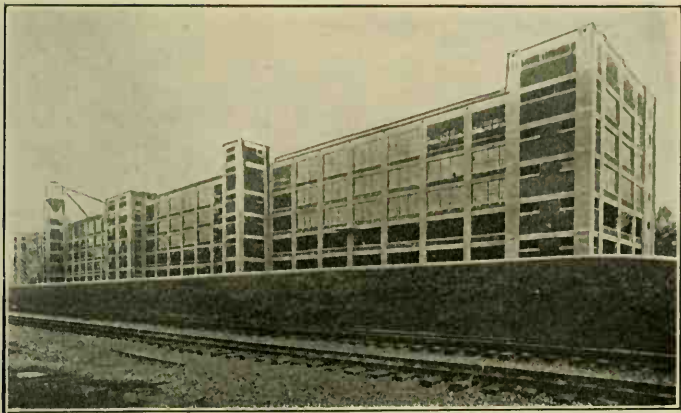
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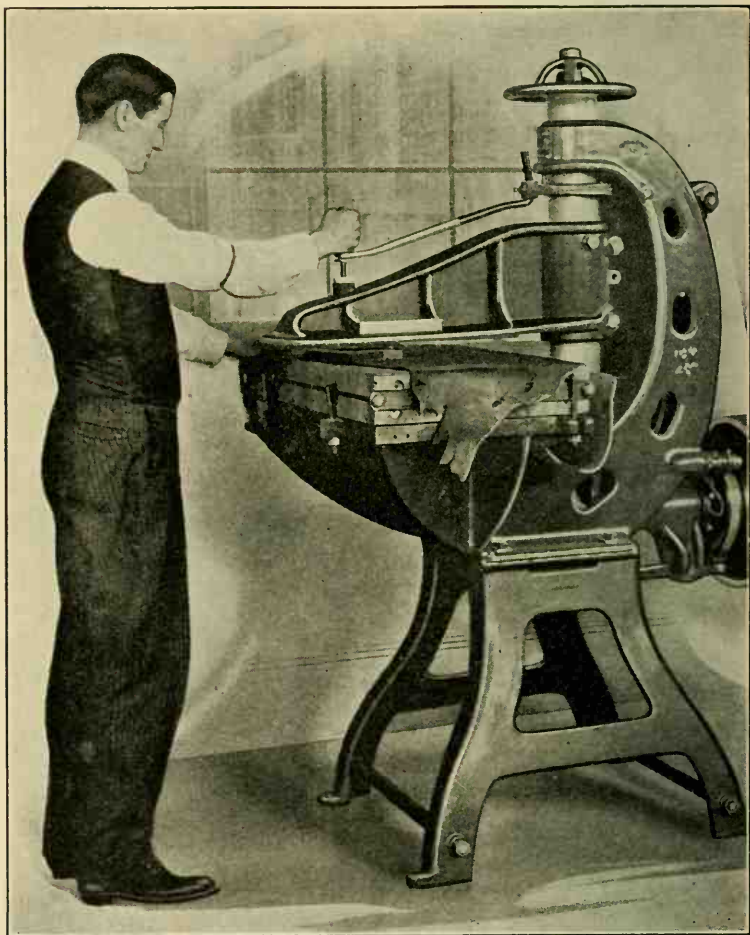
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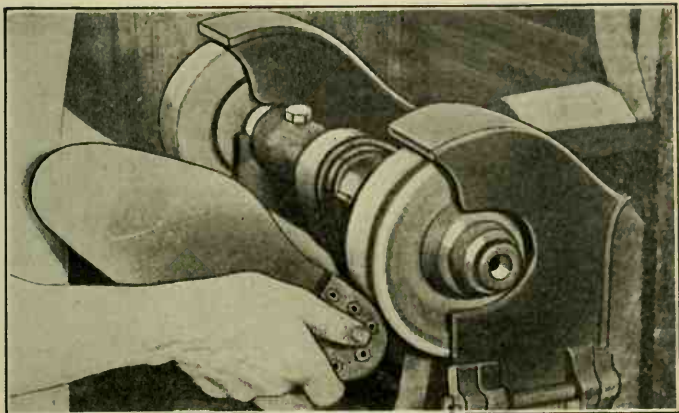
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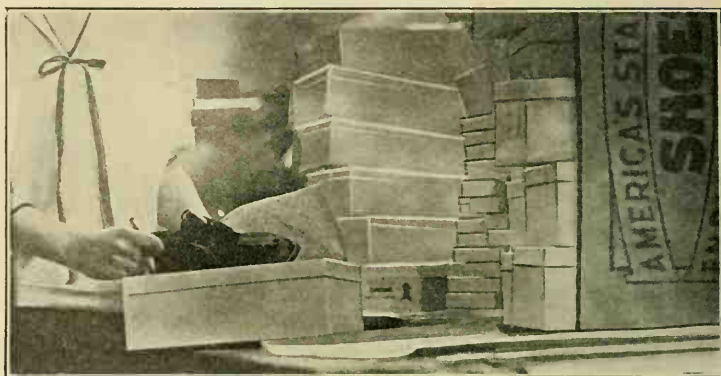
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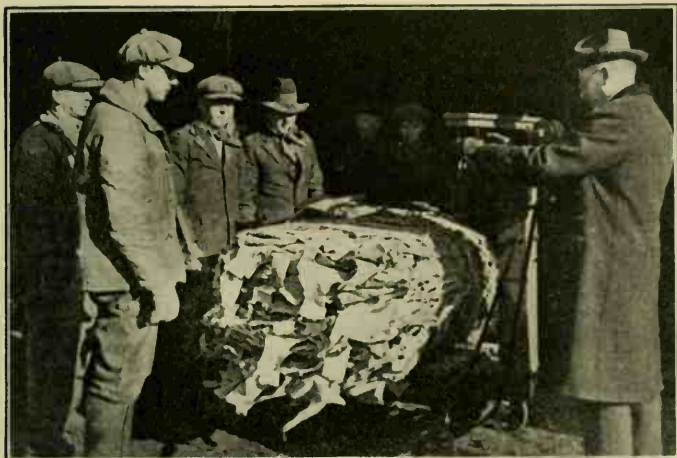
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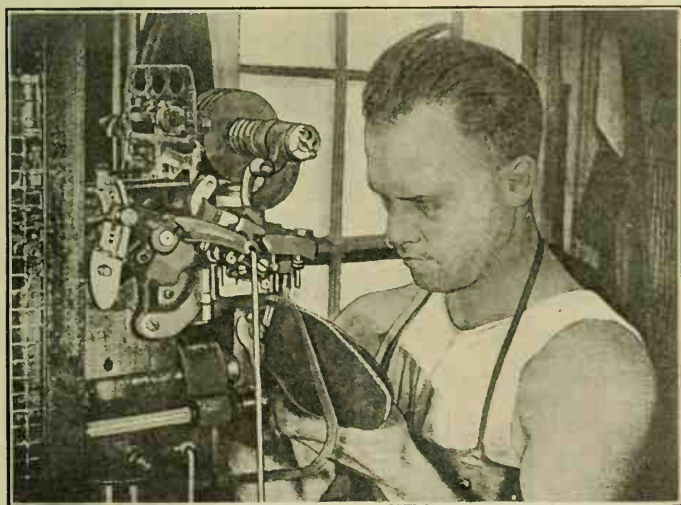
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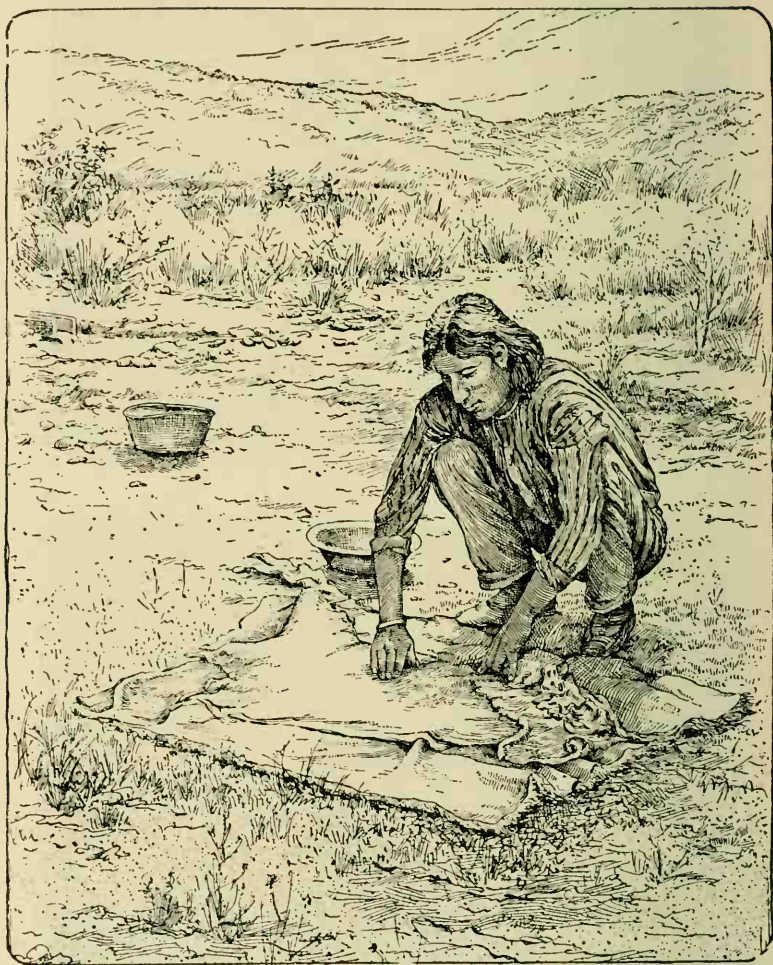
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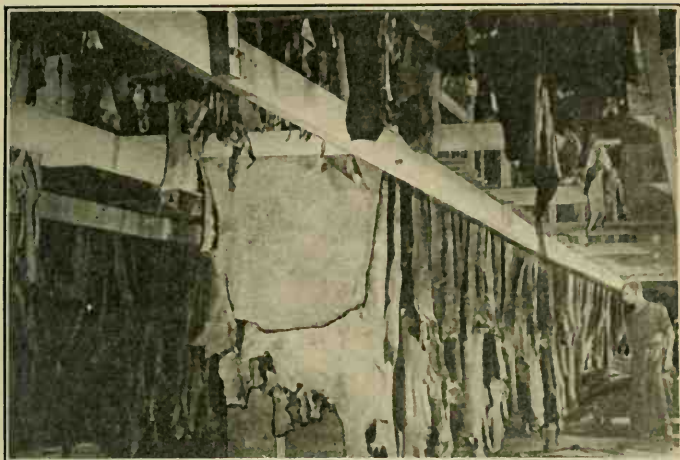
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MM

And now for the surprise! The story faded out from the screen, and in its place came the picture of a brand-new pair of leather twins. Below this picture was printed, "These are the twins which Johnny Everybody ought to wear. See their good broad toes. See their low broad heels. The uppers are soft and comfortable. They are strong and will live a long time if Johnny will treat them kindly."

The little Leather Man now said, "Kind treatment for shoes is another story, which I haven't time to tell. But Mother Everybody knows it well, and she will tell it to you when you get home. Go, now, Johnny. Find the twins which are waiting for you in their little box house on the shelf in Leather Corner."

IX. NOTION AISLE

A BUSINESS MEETING OF NOTION FAMILIES

On this fine spring morning something very important was happening on Notion Aisle. A business meeting was being held. Perhaps the spring opening was a queer time to choose for this meeting, but the Everybodys soon found out why the Notion Families of Storeland thought this a very good time for it.

Mother Everybody needed all kinds of notions for her spring sewing. So did every mother who happened to be in Storeland at this time. Notion Aisle was crowded with people, and all were invited to stay for the business meeting.

The Everybodys had been among the first to come. So they saw the Notions take their places for the meeting. At first they were very much mixed — needles and pins, hairpins and combs, shoe polish and whalebones, all tumbling about on the counter. At a signal from the Notion Lady, however, they all began to look about, first on this side and then on that. At a second signal, they rolled and bounced and jerked and danced, to join the other members of their family. Mr. Needle

was in such a hurry that he stepped on Miss Tape's train. Mrs. Pin held up Miss Belting so long that both were late in getting to their places. Mr. Hook caught Miss Bodkin's eye and could hardly let go.

While the Notions were finding their family places, the Notion Lady said to the people, "You see, good friends, how we in Storeland try to keep everything in its place. We put together things that should go together. This not only saves time for the clerks and the customers, but also saves wear and tear of the notions themselves. Moreover, at such times as Notion business meetings, parties, and so forth, we can do things much better when members or guests are sorted out and in their proper places.

"You'd find the same thing true if you kept these things in order in your own homes. Perhaps you do not know the best way to do this. Perhaps you have never thought of such a thing as a family of notions. Perhaps after this meeting you'll know more about these handy little friends who help you every day."

By this time all were in order. There were four big families. Each was in its own place on the shelves or on the counter, and here are their names.

1. Sewing Tools
2. Dress Helps

3. Shoe Supplies
4. Hair Goods

In the family of Mr. and Mrs. Sewing Tools are :

- a.* Shears and Scissors
- b.* Needles (Hand and Machine)
- c.* Common Pins
- d.* Thread (Cotton, Silk, Linen, Worsted)
- e.* Thimbles
- f.* Other Small Things
 - (1) Tape Lines or Measures
 - (2) Bodkins
 - (3) Darners
 - (4) Emeries
 - (5) Wax
 - (6) Machine Oil

Mr. and Mrs. Dress Helps have so large a family that they can divide it into four smaller families :

- a.* Tapes, Braids, Beltings
 - (1) Cotton Tape
 - (2) Bobbin Tape
 - (3) Seam Binding
 - (4) Hook-and-Eye Tape
 - (5) Featherstitch Braid
 - (6) Rickrack Braids
 - (7) Binding Braids
 - (8) Skirt Braids
 - (9) Dress Beltings
- b.* Bonings
 - (1) Whalebone
 - (2) Featherbone
 - (3) Celluloid Bones
 - (4) Collar Bones
- c.* Elastic and Rubber Goods
 - (1) Woven Elastic
 - (2) Braided Elastic
 - (3) Dress Shields
 - (4) Rubber Sheetting
 - (5) Rubber Gloves
- d.* Fastenings
 - (1) Hooks and Eyes
 - (2) Snap Fasteners
 - (3) Baby Pins
 - (4) Safety Pins
 - (5) Fancy-headed Pins
 - (6) Hat Pins

Mr. and Mrs. Shoe Supplies have a much smaller family. Here they are :

- a.* Buttons
- b.* Horns
- c.* Button-hooks
- d.* Brushes
- e.* Polishes

And the family of Mr. and Mrs. Hair Goods is not much larger :

- a.* Imitation Shell Goods
 - (1) Side Combs
 - (2) Back Combs
 - (3) Hairpins
- b.* Wire Hairpins
- c.* Hair Nets
- d.* Curlers
- e.* Curling Irons

The Notion Lady was the chairman of this meeting. She rapped on the counter with a little wooden stocking darter. Then, when it had grown so quiet that no pin dared to drop for fear it would be heard, she said :

“Good people, we have called this meeting in order to help you. We have learned that even though people use notions every day, they often misuse them. They waste them ; they lose them ; they do not put them on neatly. For a long time the Notion Families and I have

been wondering what we might do to make people more careful and less wasteful in using notions. So we decided to invite you to this meeting, to hear a few of the members of these families tell something about themselves. Learning to know them better will make you understand how much they do to make you more comfortable. It therefore gives me much pleasure to introduce the first speaker, Mr. Scissors."

"Remember, Mr. Scissors, only ten minutes," said the Notion Lady, smiling.

Mr. Scissors cut his way through the crowds of other notions to the front of the counter, and began, in a sharp voice :

"My great-great-great-grandfather and grandmother were made more than three thousand years ago. They were made of bronze, but now we are all made of steel—at least all but the very poorest of us. But we have always shown a strong family likeness. I look, they say, very much like these earliest bronze scissors.

"Now-a-days, good scissors are made of forged steel, because this is very tough. In forging, the steel is heated enough to soften it and then hammered into shape. Perhaps you have seen a blacksmith forging a horseshoe by hand. The very best scissors use a piece

of a different kind of steel to make the cutting edge of the blade. This other kind of steel can be sharpened easily and stays sharp a long time. The cheap members of our family are made by casting, or running the melted metal into molds, or forms of sand.



Courtesy of J. Wiss and Sons Company, Newark, N. J.

Forging good scissors.

“Ninety different things must be done to make one pair of the best scissors. The first of these is forging. Huge forges run by steam are used. In the forge at the right-hand side of this picture, the drop-hammer is up; in the next one the drop-hammer has fallen.

“Four more of the ninety things are shown in the next pictures. The man in the first picture is welding the hard cutting-edge piece to the tough frame. He



1. Welding



2. Hardening.

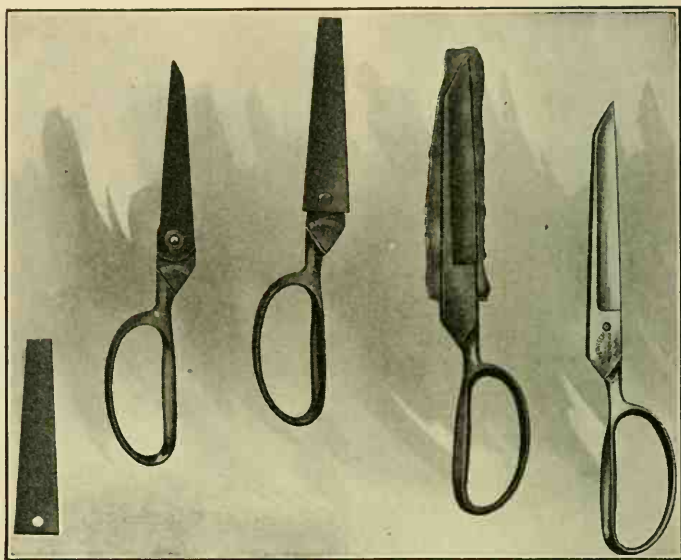


3. Grinding.



4. Finishing.

Courtesy of J. Wiss and Sons Company.



Courtesy of J. Wiss and Sons Company.

1. Piece of steel to make sharp edge of blade.
2. Handle and back of blade, made of tougher, forged steel.
3. (1) and (2), ready to be welded together.
4. Blade of shears, after welding.
5. The finished blade, after it has been ground, polished, and nickel plated.

heats the two till they are soft enough to stick together. Then he hammers them till they look like one piece of steel. The next man is putting the welded blade, very hot, into cold water to harden it. I'm sure you know why the man in the third picture is using that grindstone. And the man in the fourth is 'finishing' the shears, making sure that they cut smoothly.

“Over there is a picture which shows how the parts of the best scissors are put together.

“If you want us never to stop doing our best work for you, this is the way you should take care of us :

“1. Keep us in closed cases away from the dust.

“2. Use felt or chamois to make or to line these cases, to keep us from rusting.

“3. Keep us sharpened, but remember that one careless sharpening may spoil us for the rest of our lives.

“4. Keep our joints oiled.

“5. Never drop us on the floor.

“6. Do not allow us to lie around, but hang us up or put us in a case when we are not in use.

“Just one thing more before I stop. You should know the difference between scissors and shears. Scissors are less than seven inches long, and their two round handles are of the same size. Shears are usually more than five and a half inches long, and have one round handle to fit the thumb and one long or oval handle to fit the fingers.

“I should like to tell you all the different things we cut, but I am sure I can leave this for you to find out without my help.” So saying, he cut his own way back to his family.

“The next speaker,” said the Notion Lady, “will be

one of those useful little tools found in every home — the needles. Mr. Needle!”

Mr. Needle slipped out of his package, stuck his one foot on the edge of the shelf, and with his eye fastened straight on the Everybodys made this little speech.

“I, too, come of an old, old race. My relatives of early days were made of ivory, bone, or the thorns of bushes and trees. At first we had no eyes. The first metal needles were also quite blind. It is thought that the Chinese were the first to think of giving us eyes. Some very old needles are drawn on page 141.

“Bronze, silver, and copper were used for making some of the early members of our family. Now steel is always used.

“From great coils of steel wire, pieces are cut just long enough to make two needles. Next, both ends of these pieces are pointed, roughly. The middle part of each wire is then flattened, and two eyes are pressed into it. Next the two needles are broken apart and their heads are filed smooth. Hardening and tempering, to make us strong and tough, are the next steps.

“The eye is then made smooth, so as not to cut the thread, and the point is made perfect. We must then be polished, sorted, and stuck into papers. When

these have been folded, labeled, and done up in packages, we are ready for the stores.

“We are small and simple, but would you believe that we pass through the hands of one hundred fine workmen before we are ready for use? It takes every one of us from six to eight weeks to get through the factory. And seventy-five dollars worth of wire is worth one thousand dollars when it has passed through this factory.

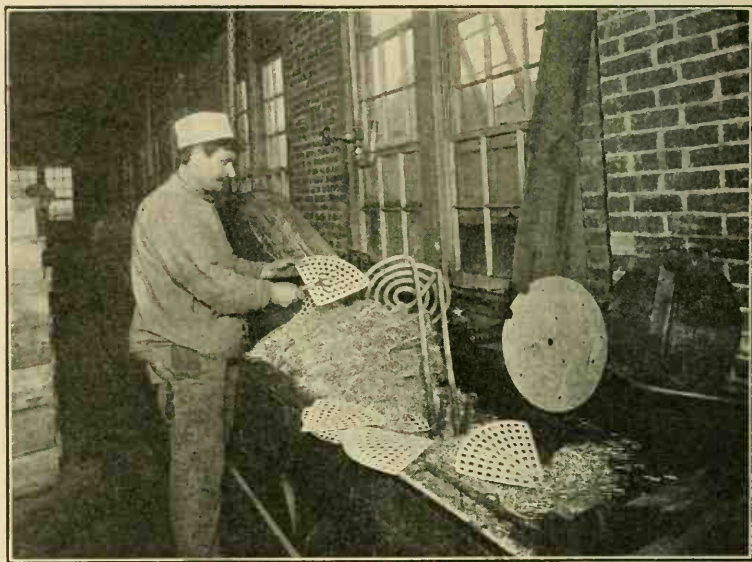
“When we are well made, we do not bend or break easily, the thread does not cut in our eyes, and our points are smooth and sharp.

“All the hand-sewing branch of our family come from England. Some of the machine-sewing branch are made in America. This is because it takes less skill to make machine needles, although they sell at a higher price.”

He made a little bow, as stiff as steel, hopped away, and stuck himself into his package again.

The Notion Lady smiled as she said, “We shall now hear from our good friend, Miss Pin. Have you ever thought how much we should miss these sharp friends of ours if they should be taken from us?”

Out from her row came Miss Pin, holding her head up high :



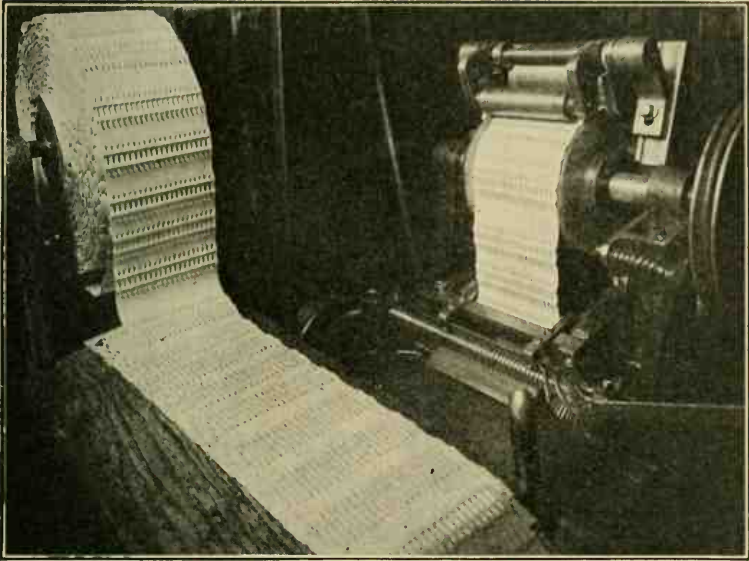
Courtesy of the American Pin Company, Waterbury, Conn. © Brown Brothers.

Plating brass pins with tin.

“I am just a simple pin. But I was made in a pin-making machine, which is not at all simple.

“This machine put a head on me while I was being cut off the coil of brass wire. Then its iron fingers picked me up, along with many of my sisters. They twisted us back and forth on an emery wheel. This gave us our points. Some of my cousins are made of iron or steel wire.

“One man can work twelve machines, and each machine makes from one hundred and twenty thousand



Courtesy of the American Pin Company. © Brown Brothers.
Pin-sticking machine.

to one hundred and fifty thousand of us in a day. When you children are a little older, you can easily find out for yourselves how many pins one man can make every day.

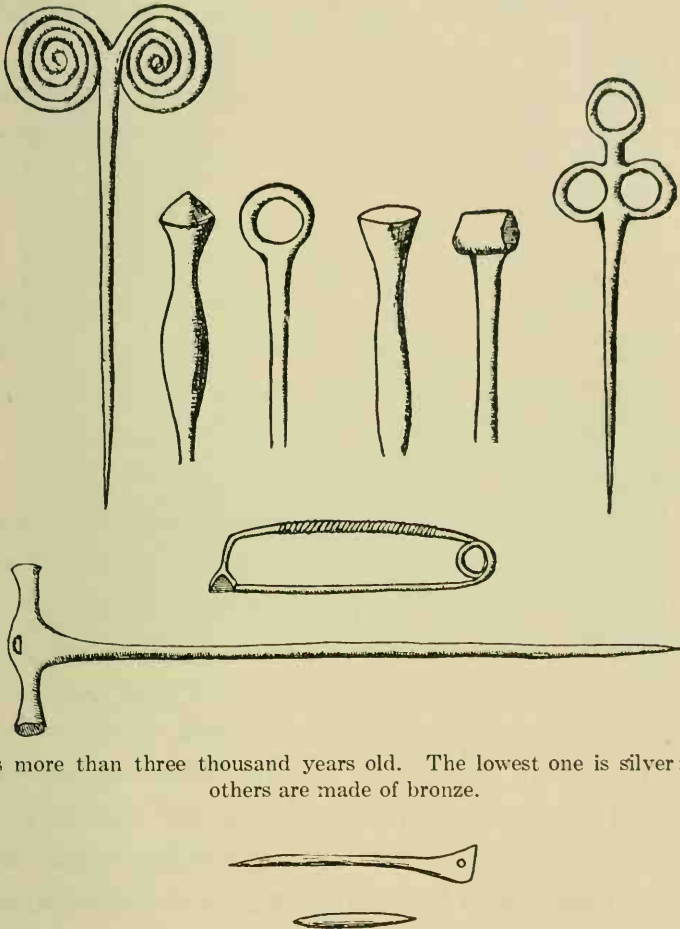
“The picture on page 138 shows a pile of us, just dumped out of the pail in which we were plated with tin. The man with a fork is pulling out the sheets of pure tin which were put among us in the pail. The liquid in the pail took a little tin from the sheets and put it on us.

"Now we are either weighed and put into boxes, to be sold, or else stuck into papers. You ought to see how the machine shown on page 139 sticks rows of us into papers. Iron fingers take a lot of us up by the heads. From another part of the machine comes a long strip of paper, with ridges crimped in it, ready to receive one row of us at a time. As row after row is filled, the machine rolls up the paper. Enough rows to make one paper of pins are then cut off by hand and folded up from each end.

"The first of our family were just thorns, fishbones, or pine needles. Later the women who used these pins made them work better by sharpening their points. You may see some of my early relatives, thousands of years old, in this picture.

"By and by people began to make us of metal. The first of us made in the United States sold for one dollar a paper. But about a hundred years ago, after the pin-making machine was invented, we became much cheaper. Now you can buy us for very little indeed."

The Notion Lady looked at her watch and said, "I am sorry, but the time is growing so short that I fear we must have shorter speeches in order to hear from all the families. Mrs. Cotton Thread, will you say a few words about yourself and your relatives?"



First more than three thousand years old. The lowest one is silver; the others are made of bronze.

Two bone needles more than three thousand years old.

From "How the Present Came from the Past," by Margaret E. Wells. By permission of The Macmillan Company, publishers.

Mrs. Thread, very thin and pale, began to unwind herself, saying :

“The members of my family are made of cotton, linen, silk, or wool. I am the very best cotton thread, for I am made of six strands or cords twisted together. My poorest relations are made of only two or three.

“How cotton, linen, silk, and wool are grown and made ready to be made into thread you have already heard in other parts of Storeland, so I’ll not take any more of your time to tell you here.” And she rolled herself up on her spool.

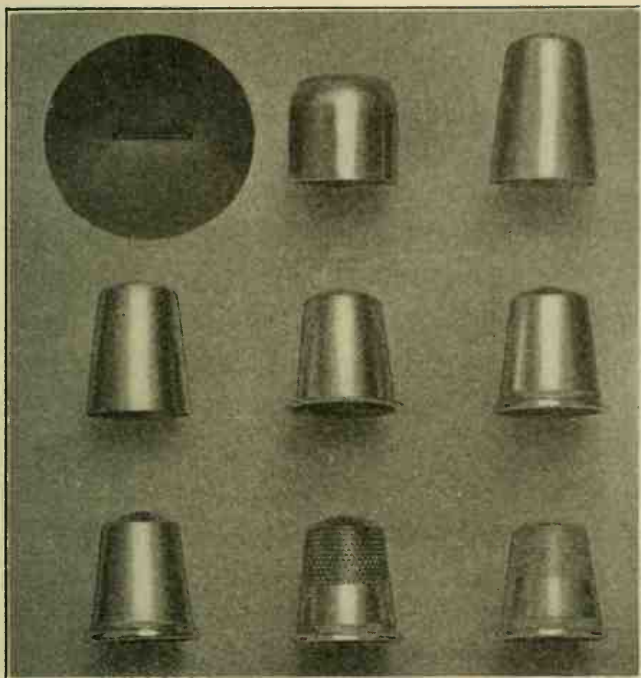
Mr. Thimble’s turn came next.

“We thimbles may be made of celluloid, aluminum, brass, steel, silver, or even of gold. My brass and steel brothers are usually plated with nickel, German silver, or sterling silver.

“Our ancestors were made of leather and used on the thumb. They were called thumb bells.

“The metal branch of our family is about three hundred years old. Holland was its native place. More than two hundred years ago a Dutchman went to England and began to make metal thimbles there.

“For many years we were made by hand, but now we are made by machines.” As he spoke the last word,



Courtesy of the Scovill Manufacturing Company, Waterbury, Conn.

Steps in making a metal thimble. (The lines in the center of the flat circle of metal show the wire that fastened it to the card to be photographed.)

Mr. Thimble began to hop up and down. This must have been a signal to the Notion Lady, for she drew aside a curtain which had hidden a large chart showing the pictures above.

“Since I cannot have the ten minutes that I expected for this talk,” said Mr. Thimble, “you must look at

the pictures and see for yourselves the different steps we metal thimbles must take before we are ready to work for you. Our celluloid cousins are made in a heated press."

"Now," said the Notion Lady, "just one-minute speeches from four other members of the Sewing Tools Family."

Miss Tape Line said :

"We can be made of steel, cotton cloth or tape, or oilcloth. Oilcloth tape measures are the best for your work baskets. They are true to the end of their lives and they live long. But my cloth sisters are pretty good if they are double, firmly stitched, and tipped with metal."

Miss Bodkin said :

"We are closely related to the needles. Each one of us has a blunt point, a flat body, and an eye. We help you to draw tape or ribbon through a loop or a casing. We may be made of bone, of celluloid, or of steel, plated with nickel."

Mrs. Darner and her daughter sang together :

"We are used for darning — darning gloves and stockings.

We are often made of wood, wood, wood."

Then Mrs. Darner sang alone :

“I am short and chunky ;
To me your stockings send.”

And her little daughter, Glove Darner, went on :

“I am long and slender,
Peanutty at each end.”

Mrs. Emery was the last speaker. She talked so fast that she grew redder than ever.

“We are very near relatives of the Pincushions. Some people think that we are just dwarf pincushions, but our likeness to them is only skin-deep. Our bodies are filled with a very hard stone, ground to a fine powder. The Needles like to spend the summer with us.”

The Notion Lady now said, “Next we shall hear from the Dress Helps Family.”

Mrs. Tape said :

“My branch of this family is very large. We are made of many different materials, and in many different designs. We are used for many different purposes.”

Mrs. Braid came forward next.

“We are first cousins of the Tapes. Thousands and thousands of years ago, women braided twigs to make mats and houses. The American Indians have always made beautiful braided baskets and mats.

“You have all helped to braid ribbons when you danced around the Maypole. The braiding machine of today is like the Maypole in some ways. It is circular. Spindles with yarn on them take the place of children holding ribbons. The yarn from these spindles runs to the central ‘pole’ like the ribbons of a Maypole. The spindles dance in and out, one going to the right, the next to the left, and so on. They go round and round the pole, braiding their yarn into a sort of tube. When this tube leaves the machine, it flattens out, so that the braid is really double.

“To make a braid of one thickness, each spindle turns when it has gone around the pole, dances back to its starting place, turns again, and so on. The place where the spindles that go to the right turn to dance back again makes one edge of the braid. The turning place of the spindles that go to the left makes the other edge.

“We can be made of cotton, wool, silk, and something that looks like horsehair. We are made in many patterns and colors, but we have a stronger family likeness than the Tapes. Some of us work in the Millinery Department, and most of these are made of straw.”

Safety Pins came next on the program.

“The early members of our family were made by

hand, of bronze or gold or silver. They were shaped like us, but there weren't many of them. Now we are made by thousands, of brass or steel, plated with copper, tin, or nickel. Machines to make us were first used in America, more than a hundred years ago. In buying us, be sure to see that the clasp opens on both sides, and that the spring, at the other end, has a guard so that the cloth cannot catch in it."

Then came those close friends, the Hook and Eye, arm in arm.

"We are made of brass or iron wire, which is plated," they said together.

Mr. Hook went on with the story alone.

"A coil of wire is put into the machine that makes me. Steel fingers take hold of the wire and cut off as much as is needed to make me. Then they bend the wire to make the two loops that hold the stitches when I am sewed on; they turn up my hump and fold the wire together into a hook. This machine works so fast that it looks as if it did all these things at the same time."

Then it was Mr. Eye's turn.

"A much simpler machine makes me, for you see how simple I am. There's so little to say about myself, that I'll tell you our family story. Our great-great-great-grandparents lived about four hundred

and fifty years ago. They were very clumsy, for they were made by hand, of heavy wire. A lady in Maryland paid ten pounds of tobacco, in 1643, for a few of us. The greatest thing that ever happened to us was the hump which was given to us in 1889."

"And now," said the Notion Lady, "we shall hear from two other close friends, the Snap Fasteners."

"We cannot say that we come of an old family, as do most of the Notions. Indeed, we have been in use only about seventeen years. But we have learned to be very useful in that short time.

"At first we were used only for fastening clothes. But — would you believe it? — one man says that our family has now seventy-five different uses. Some of these are: fastening the curtains on carriages and automobiles, fastening rugs to the floor, fastening slip covers on furniture, pianos and pillows."

"Two friends, not quite so close as those you have already heard, will now speak for their family," said the Notion Lady.

Collar and Cuff Buttons rolled out together.

"The Button Family is too large for the Notion Department of most stores. But *we* always stay near the Hooks and Eyes and the Snap Fasteners. We are very useful to man, when we don't get lost. We are

sometimes made of mother-of-pearl, like many of our sewed-on relatives. Mother-of-pearl is the shell of the oyster in which real pearls grow. The shells are made soft by soaking in a liquid. Then a sort of tube or pipe, with saw teeth on its edge, cuts out circles or 'blanks' of shell of the right size. Several other machines shape these blanks and polish them. We are then ready for your use.

"Our celluloid sisters are cheaper, but bone and china or porcelain are the cheapest of all our tribe. We'll have to let you find out for yourselves how they are made, for the Notion Lady looks cross."

"No, I'm not cross at all," said the Notion Lady, "but we are really taking more than our share of the time of these visitors. I think we can hear from only one or two members of the other families at this meeting. But I promise you that the rest shall have a chance next time.

"Suppose Mr. Celluloid Comb speaks for all the members of the Hair Goods Family that are made of the same material as he."

Mr. Comb showed all his teeth in a broad grin, as he stepped forward.

"I don't believe that many of you know that I am really one form of your old friend cotton. The sales-

woman calls us, and the hairpins that look like us, 'imitation shell,' but we are just celluloid, colored to look like tortoise shell. Celluloid is known by many other names, for it can be colored to look like ivory and many other materials.

"Would you like to know how cotton can be made hard and tough like me? It's a long story, but I'll make it as short as I can.

"Clean cotton cloth is first made into tissue paper. The paper is put into an acid bath, which makes it pulpy. Camphor and the kind of dye needed are mixed with this pulp. Another bath changes the mixture into a pasty mass, like cooked molasses. It is now worked on heated rollers till it is ready to be pressed into cakes of celluloid.

"The celluloid cakes are afterward sliced into sheets of the thickness needed. These sheets must dry thoroughly before they are used. If this is not done, the combs and hairpins will warp, or get out of shape. It takes from three weeks to a year for this drying. The thicker the sheet, the longer it must dry.

"Celluloid may be sawed and planed like wood, or it may be molded in a hot press. It may even be dissolved and used like varnish. But be sure to remember that anything made of celluloid will take fire very

easily. Suppose you try to find out in which of these ways we combs and our friends, the hairpins, are made."

Miss Hairnet now unfolded herself and said, "All hairnets made of human hair are made by hand. We can be bought to match all colors of hair. Most of us come from China and are made of Chinese hair. A good worker makes one dozen of us in a day. Americans cannot make us because the work is too slow to pay. Even if people here could make a living by making us, the work takes too much skill and patience for most Americans."

The Kid Curlers and the Curling Iron were beginning to quarrel about which should speak first, and all the members of the Shoe Supplies Family looked as if they had lost their last friend. For the Notion Lady had risen from her chair and laid her finger on her lips. Stepping forward, she said, "We have but a few minutes left. Before closing this meeting, are there any suggestions?"

"Madam Chairman," said the biggest Shoe Brush, "I move that we ask these good people to come to our next meeting, to hear from those who could not speak today."

"I second that motion." The Notion Lady never knew whether it was the Curlers or the Curling Iron,

the Shoehorn or the Button-hook, that spoke first. But there was no doubt that the motion was seconded.

"It has been moved and seconded that we invite all those present to come to the next business meeting of the Notion Families. All in favor will please say 'Aye.'"

All the Notions that had spoken said "Aye" as loud as those that had not, and the Everybodys said it loudest of all. "And we'll find out something about the rest of these Notions before we come, too," said Nell.

All the Everybodys began telling which Notion he or she was going to find out about, but Johnny quickly said, "Sh! sh! The Notion Lady wants to speak."

"A motion to adjourn is now in order."

"I move that we adjourn, to meet again a month from today," said Mr. Shoe Polish.

"I second the motion," said Miss Shoe Button.

"All in favor say 'Aye,'" said the Notion Lady.

And while they were saying it, and the Everybodys were saying to one another, "Wasn't that interesting?" the meeting broke up. The Notions all took their regular places on the shelves and the Everybodys went on to Hat Circle.

X. HAT CIRCLE

BUYING A NEW HAT FOR MOTHER EVERYBODY

Yes, Mother must have a new hat — not only because the hat she had worn all winter was shabby, but because spring had come.

Hat Circle on this beautiful spring morning looked like a flower garden. The hats themselves were almost lost among the flowers and feathers.

The children wanted Mother to pick out a pretty hat all ready to wear. She tried on many of them, some with flowers, some with feathers, some with ribbons. There was one beautiful feathery hat which all the children wanted her to buy. It looked very well on her, but she would not even ask its price. And when she told them this story, they were very glad she had refused to buy it.

“These beautiful, soft, waving, white feathers are aigrettes. They come from the small white heron, or egret. These birds live in damp, swampy forests. Many used to be found in North America, but there are few left in our country, because women wanted their plumes. These plumes grow on the mother

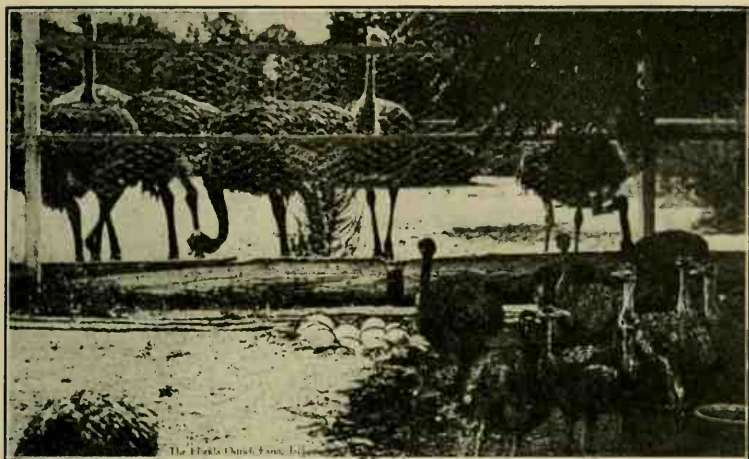


Courtesy of the National Association of Audubon Societies.

A mother egret with her babies.

bird's back only when she is tending her babies. So when the cruel hunters kill the mother to get the pretty feathers, the babies are left to starve in the nest. Often the hunters do not even kill the mother, but tear out her plumes and throw her on the ground to bleed to death.

“The Audubon Society is trying in many ways to make women understand how cruel it is to wear aigrettes. In many states laws have been made to for-



Courtesy of the Florida Ostrich Farm, Jacksonville.

Baby ostriches and yearlings.

bid selling them. I know my children wouldn't want their mother to wear anything which had caused another mother and her children to die."

"No, no," said all the children. "We'd think of her and her starving babies whenever we saw the hat on you."

They passed on to other pretty hats with feathers — beautiful ostrich plumes. On the wall behind the counter were pictures taken on an ostrich farm in Florida. Mother said, "Now *these* plumes may be taken from the birds without harming them or their babies. Before beginning to clip off the plumes, the



Courtesy of the Florida Ostrich Farm.

Clipping plumes from an ostrich.

men put a sort of hood over the ostrich's head, covering its eyes. The bird makes no fuss at all while the feathers are being cut off. Does this remind you of anything else that you have heard about ostriches?"



Courtesy of the Florida Ostrich Farm.

An ostrich in harness.

"These are queer birds, children. Can you believe that a full-grown male bird weighs three hundred pounds and can look over a fence nine feet high? The female is gray. The male is black, with wings and tail bordered with white. You can tell that ostriches are strong by looking at the next picture on the wall.

"A few hens and one cock make and guard one nest

of eggs. One or two dozen babies are hatched in the nest, and the parents feed them with the extra eggs which the hens lay in the sand near the nest. The heat of the sun does most of the hatching, but the ostrich sits upon the nest, too. This is probably to protect the eggs. The babies in the first picture are very young. Of course you can tell me how old the yearlings, standing near the babies, are."

"Get a hat with ostrich plumes on it!" cried Nell. But Mother said, "I have several of these feathers packed away in camphor at home, which I want to put on my hat next winter."

So they passed on to the hats trimmed with flowers. These were so pretty that the children wanted Mother to buy almost every one she tried on. But the saleswoman said, "This is too small for your face." "Your nose is a little too long for this one." "That brim droops too much." "The blue of these flowers does not look well with the blue of your eyes." "Don't you think this is a little too youthful for you?" "I fear these flowers wouldn't wear very well." "This brim is turned up too much."

Finally this honest saleswoman said, "I am sorry I haven't a hat that is just right for you. But wouldn't you like to look at the untrimmed hats? For if you

find one that suits your face, you can have it trimmed just as you wish." Mother thanked her for her help and the Everybods walked on to the next section.

"Do you want a handmade or a machine-made hat?" asked the saleswoman there.



Courtesy of the Henry W. Peabody Company, New York City

A hat made of Tuscan braid, sewed together by hand.

"Please let me see both kinds and tell me something about them."

"Here's a Tuscan braid hat. As you see, two kinds of straw are used in making this hat, and there are little holes in it. The braid is made in Italy. Some kinds of it are so open that they look like lace. But

they are very strong because the straw is not split before weaving."

"I think that would be a more dressy hat than I want," said Mother.

"Here is a Leghorn. It is made of Tuscan straw. After a few yards of the braid are plaited the girl begins to sew it together to make a hat. This hat may be pressed or 'blocked' into any shape wanted. The braid has little teeth or 'eyes' along each edge. These fit together so as to hide the coarse, twisted cotton thread which is used to sew the braid. Most people think that Leghorn hats are woven in one piece, like Panamas, but they are mistaken. In Italy, where these hats are made, one can see women and children on the streets, plaiting the braid as they walk. Over there is a picture showing girls weaving hats very much like Panamas."

"See the children making straw braid!" said Sarah, after they had walked across the room to see the picture the saleswoman had mentioned.

"Yes, much of this work is done by children, especially in China and Japan," said the clerk. "Do you see the pair of little rollers at one end of the picture?"

"Just like the doll's wringer that came with my little washtub!" said Nell.



Courtesy of the Bureau of Insular Affairs.

Three girls in the Philippines weaving hats. One of the men is ironing a hat to flatten the top of the crown.



Courtesy of the Henry W. Peabody Company.

Making straw braid in Japan.

"The braid is passed between those rollers to flatten it out. But I must not keep you too long. Shall we go back to Mother's hat?"



Courtesy of the Henry W. Peabody Company.

Sorting and packing straw braid in China.

"Here is a Milan, which is also made in Italy. The braid is fine, yet very strong. In America, it is generally sewed with a lock-stitch machine, as in this hat.

"There are hundreds of kinds of straw braid. Those which are made of split straw are cheaper than Tuscan, Leghorn, and Milan, but they do not wear so well.

Japanese and Chinese braids are usually made of split straw. Two very interesting pictures which our buyer brought from China are hanging close to the elevator on this floor. You can see them without any trouble when you are ready to leave.



Courtesy of the Henry W. Peabody Company.

Bales of straw braid, in China, ready to be shipped to New York City.

“You might like a hemp hat. These are light in weight, yet very strong. They are stiff enough, yet they bend enough. They may be had in many pretty shades, both light and dark, and they do not take up the dampness easily.

“Here are the chip hats. These, you know, are made from real wood. Long thin strips of willow or some

other wood are woven by a machine into a braid of three, five, or seven strands. As you may guess, these hats do not stand hard wear.

"A hand-sewed hat of machine-made horsehair braid wears very well and is very light in weight. It is dressy, but always in good taste." Here the saleswoman turned to the children and said, "Wouldn't you like Mother to have a hat made of the hairs from a horse's mane and tail?"

The children weren't at all sure that they would, for they had not forgotten what Mother had told them about aigrettes. But the saleswoman said that the hair was taken off in such a way that it did not hurt the horses at all.

"Which do you like, Mother?" asked Johnny.

"I believe that I like that light gray Milan best of all the hats I've seen. It fits my head better than any of the others, and I know the braid wears well. It matches my dress, and if it fades I can have it dyed and reblocked next year."

"You have made a very good choice, Madam. I am sure that you will not be sorry. Will you look at trimmings now?"

Mother felt Sarah pull at her dress and heard her whisper, "Please let me trim your hat!"

Now Sarah had always trimmed hats for her dolls and all the dolls of the neighborhood, and she had trimmed some very pretty hats for herself — but could she trim a grown-up hat?

“Why, dear child, do you think you can?” said Mother.

“Yes, I’m sure I can. I know what I’d like to see on it. Yellow buttercups.”

“Buttercups would be pretty,” said Mother. “Please show us some.”

So they went to the flower counter. Oh, what a pretty place it was! There were flowers of muslin, velvet, satin, silk, tinsel-cloth, and ribbon; flowers of leather, celluloid, crepe, felt, and even of feathers. There were bunches, sprays, wreaths, and bouquets of all sorts of flowers. There were roses, violets, poppies, daisies, buttercups, pansies, forget-me-nots, lilacs, sweet peas, and lilies of the valley.

Mother’s hat had cost so much that she felt that she must not spend much money for the trimming. The beautiful wreath of buttercups which all the children liked so much was very high-priced. Again Sarah pulled at Mother’s dress and whispered, “I’ll make the flowers, Mother. I read in a book how to do it.”

“Why, my child, you couldn’t do that.”

"Yes, I can," said Sarah. "Yes, I can. Please let me try!"

The saleswoman looked surprised, but she was pleased, too, for she liked to see people do things for themselves. So she said, "I'd let her try, if I were you. Bring your hat in and show it to me when it is trimmed. Perhaps I can help in some way, if Sarah should find it harder than she thinks it will be."

The other Everybody children could hardly wait to see the flowers which Sarah was going to make and which she said she would teach them how to make. These are the directions which Sarah had found in a book at the library. Perhaps you would like to try them yourself.

1. Stretch white lawn on a frame.
2. Brush it with a mixture of starch and gelatine, to make it stiff and smooth.
3. Draw the flower patterns.
4. Trace the patterns on the muslin.
5. Cut them out carefully.
6. Dip the flower-leaves into a bowl filled with dye. While they are still wet, put on any shading you may wish, with a brush.
7. Lay the finished petals on sheets of blotting paper, and dry them in the air or in an oven.
8. Twist the end of the wire stem around a

bunch of the little yellow center parts of the flower. (These can be bought at a millinery shop or in the art department of a big store.)

9. Glue the petals to the stem, around the yellow center.

10. Slip up on the stem the little green outer part of the flower, and fasten it with a drop of glue. (This green part may be bought with the stems and centers, or it can be made as the petals are.)

Just as they were turning away, the saleswoman said, "Have you an automobile, Madam?"

When Mother answered, "Yes," she asked, "Then wouldn't you like a little soft felt hat to wear in the machine? It would be very comfortable and would help to save your Milan."

"A good idea," said Mother. "Will you show us what you have?"

So the family selected a felt hat for Mother — a light brown one, with only a veil for trimming. But this veil was so put on that it could easily be drawn down over the face when it was needed.

When the saleswoman came back with the boxes which held the hats, she handed Johnny a little booklet called *The Making of a Felt Hat*. "Perhaps you would enjoy reading this while your sister makes butter-cups," she said.

And this is the story which John read to Sarah while she worked :

“Felt may be made from either fur or wool. If one looks at the fibers of fur or wool under a microscope, one sees that the hairs are not smooth, but have many little scales on them, all pointing the same way, like the scales on a fish.

(“I remember the picture we saw on Wool Road that showed the scales on a wool fiber,” said Johnny.)

“These scales spread apart when the fibers are put in hot water, and flatten down again when it is dried. Felt is just these fibers of fur or wool matted together. The scales of each hair catch on the scales of the hairs next to it and lock the hairs together.

“Furs for making felt come from all parts of the world. The skins are first sorted, as to kind, color, and quality. Then they are brushed to straighten out the fur, and any long, stiff hairs are pulled out.

“Next the skins are wet with a liquid which takes out the fatty matter. This is called ‘carroting,’ because the bath gives the skin the color of carrots. After being dried, the skins are stored in cellars until needed.

“After being well brushed, to make all the hairs lie the same way, the skins are put, one after another, into



Courtesy of the John B. Stetson Company, Philadelphia, Pa.

Carroting furs for making felt hats.

a very wonderful machine. Its knives, turning very rapidly, slice the hairs off the skin so smoothly that they are all left standing up on end. They look as if they were still fastened to the skin. At the same time the skin itself is cut into threads as thin as those of a shredded wheat biscuit. These strings of skin fall from the under

part of the machine. Later, they are sold to be made into glue.

"The machine slides the fur of each skin on to a metal plate. These plates are passed to girls who sort the fur. The best part of the fur of land animals is on the back, but water animals have their best fur on the belly.

("Yes, we learned that on Fur Alley," said Sarah, showing that she could listen while she worked.)

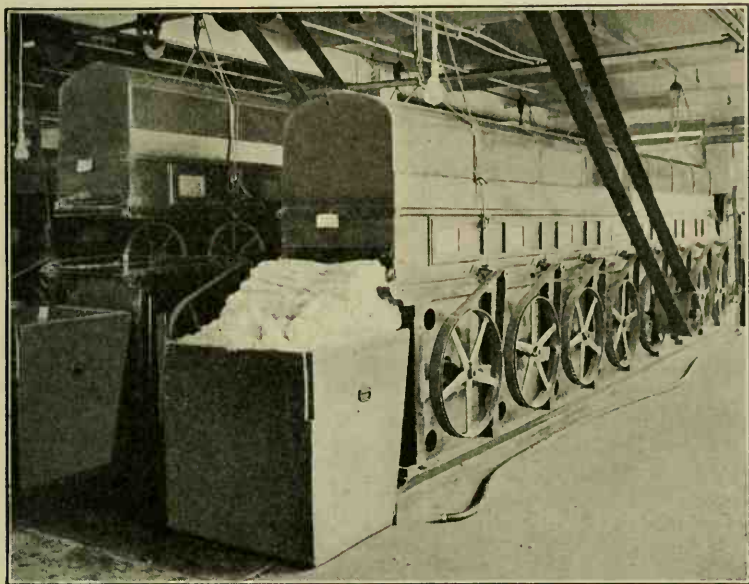
"The sorted fur is then put into five- and ten-pound bags, to be sold to hat factories. The best factories, however, do all this work for themselves.

"Makers of wool felt hats buy the wool waste which is left after the carding and combing of the wool in the mills. From this point in the story, the work of felting is the same for fur and for wool.

"The hat-maker first weighs the fleece. Then it is mixed, to get different qualities of felt. The more long fibers are used, the better the felt. The best felts are made of fur.

"To mix and clean the fibers, two machines are used. The first is called a 'devil.' This has teeth which turn round and round, tossing and whirling the fibers and picking them apart. After they have settled, they are tossed again, and yet again. The second machine

is called a 'blower.' This tosses the fur up and blows out bits of skin, long stiff hairs, dust, and dirt of all sorts.



Courtesy of the John B. Stetson Company.

A blowing machine, with the fur coming from it.

“The blower in this picture tosses the fur eight times, once in each of its parts. See how clean, how soft and fluffy, the fur that comes out looks!

“The fur is now ready to go to the ‘former.’ This machine was invented in 1846. It looks somewhat like a cellar furnace. In it the fur is whirled and scat-



Courtesy of the John B. Stetson Company.

The machine which forms the hat body.

tered above a cone of thin copper plate. This cone has many tiny holes in it, like a sieve or a colander. Under the cone a wheel, turning very fast, sucks the air through the holes leaving the fur spread evenly over the cone. Only enough fur to form one hat is put

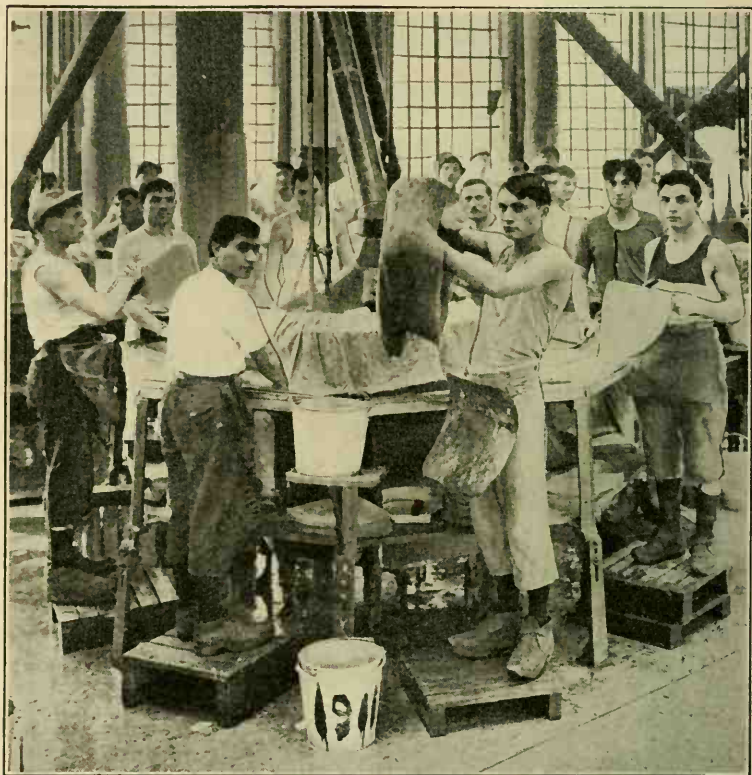
into the forming machine at a time. From three to five or six ounces are needed for most hats.

"In this picture of the former, the doors have been opened, and the cone is ready to be lifted out. But first it is wrapped in wet cloths, and another cone with holes in it, but with an open top, is put over it.

"The two cones, with a layer of fur between them, are put for a minute into the tank of hot water which you see in the picture. This makes the scales on the fibers lock together, and forms the hat body. But this body is very thin and tender and much larger than the finished hat. It is about three feet high, and nearly as wide as this at the bottom.

"The bodies are now gradually shrunk to one-third their first size, by rubbing them in hot water, much as baby's shirt and socks are shrunk by many washings. This is done again and again, till the fibers are matted together closely enough. After each dip the hat maker looks the cone over carefully to make sure that the hat body is shrinking evenly. He also picks out any dirt that the blower did not take out.

"In the picture on page 174, the man who is standing at the right of the pails is just beginning to shrink his hat body; the man just beyond him has almost finished his."



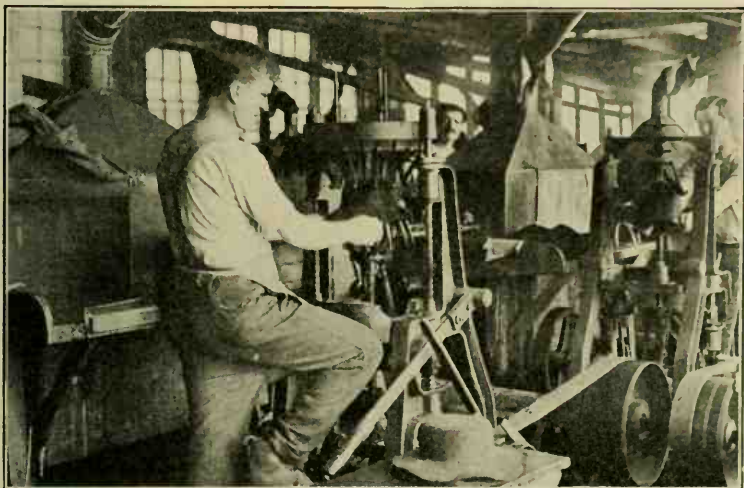
Courtesy of the John B. Stetson Company.

Shrinking felt hat bodies.

("I wonder why the men are standing on platforms," said Johnny.)

("Because the floor gets so wet, I think," said Sarah, looking over his shoulder.)

Johnny read on: "The next step is to dye the bodies, unless the natural gray is wanted. They are boiled in a dye bath for several hours in large vats, and stirred all the time.



Courtesy of the John B. Stetson Company.

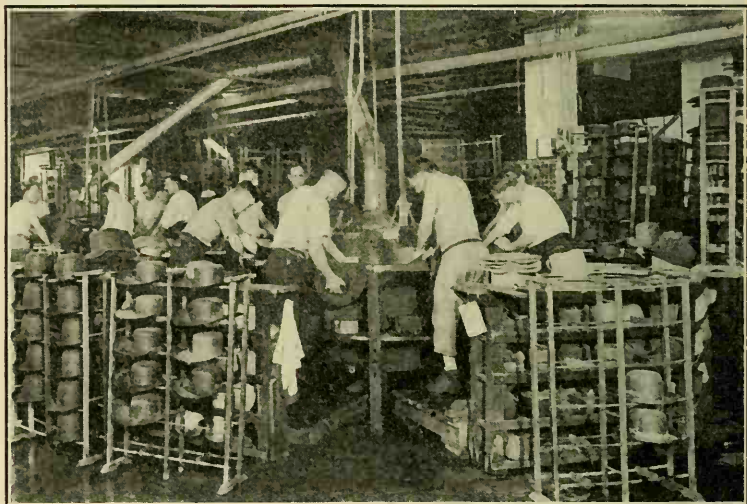
Stretching the felt cone to form crown and brim.

"After drying well in a heated room, the hat bodies are dipped in a bath of alcohol and shellac, to stiffen them.

"The stretching machine, shown above, and the blocking machine shown on page 176, come next. They make the cones into real hats. Many things must still be done to them to make them soft or stiff,

rough or smooth. Then the brim is trimmed and finished.

“Now comes the packing of the hats in bandboxes, and the packing of the bandboxes in wooden cases for shipping.”



Courtesy of the John B. Stetson Company.

Shaping the hats on wooden “blocks” or forms.

Sarah and Johnny so enjoyed this story that they were almost ready to decide that Johnny must be a hatter when he grew up, so that all of Mother’s hats might be made in the family.

XI. RUBBER ROW

FROM JUNGLE TO BOOTS

It was growing late. Mother Everybody looked at her list. "Rubber fishing boots for Father." Surely they couldn't go home without buying these! For Father was going trout-fishing the very next Saturday. And so to Rubber Row they hurried.

There they saw rows and rows of rubber clothes for men, women, and children — coats, capes, and hats; short boots and long boots; galoshes, overshoes, and sandals. Some were of pure rubber; others were rubber-coated; and others still had rubber mixed with the fibers of the cloth. And so the Everybodys — even Mother herself — had a chance to find out some things about rubber which they had never known before.

The story of rubber was told as you will now read it. The pictures you see with the poem, they saw hung along Rubber Row. Here, then, is the story of this useful stuff, from its home in the big caoutchouc trees in the jungle to the great, long, rubber boots which the Everybodys bought for Father.



© E. M. Newman, from Publishers Photo Service.

FROM JUNGLE TO BOOTS

This is the jungle, deep and dark,
In which the gum trees grow.
Through tangled vines the men must break
Who for the treasure go.



Courtesy of the Firestone Tire and Rubber Company, Akron, Ohio.

This native's knife is sharp and bright.
Now through the bark it goes.
Look at the wound, skin-deep and long,
From which the tree's blood flows.

There is the cup to catch the drops
As from the wound they come.
Yonder's the fire to warm and dry
These drops of milky gum.



This native has a stick of wood
On which the gum is spread,
Layer upon layer, as each is dried
By the fire glowing red.

When the gum's no longer soft,
But like dough it stretches,
Then the native with his tool
On it sometimes sketches.



Courtesy of the Boston Woven Hose and Rubber Company.

Then the stick is taken out
And the native sells
To rubber factories far and near
These thick rubber shells.

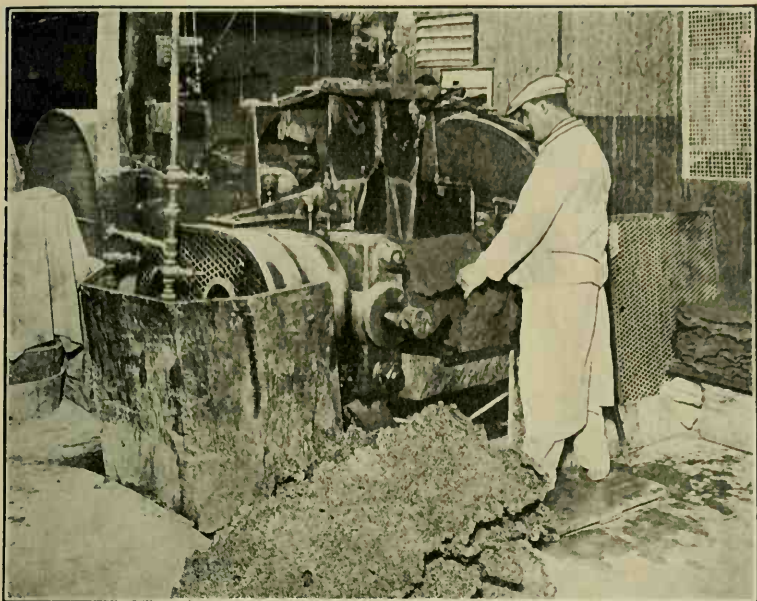




Courtesy of the Firestone Tire and Rubber Company.

This is a grove of rubber trees,
Which man learned to grow
When the auto came to stay
And jungle gum ran low.

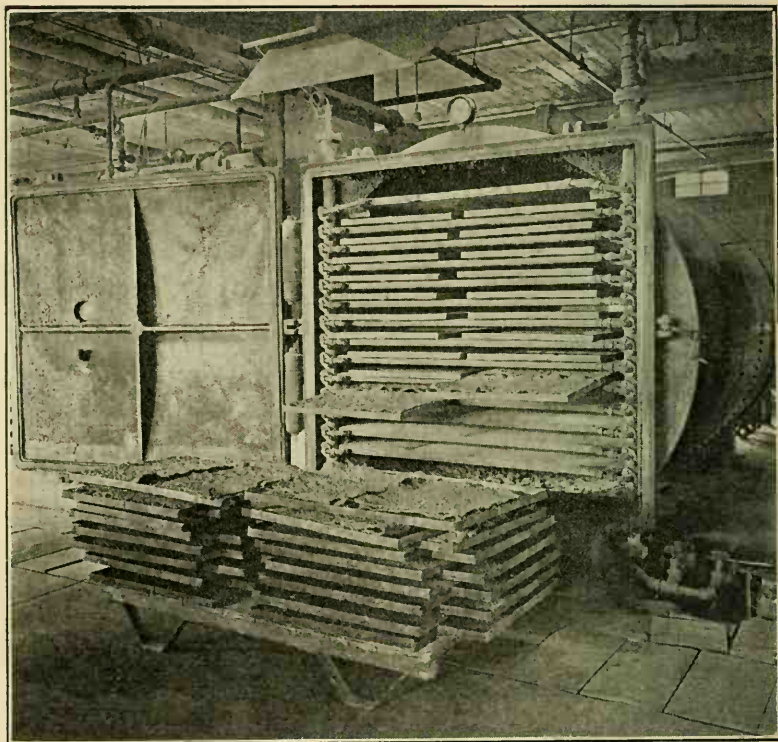
Nearly all our rubber now
From plantations comes —
Cleaner, cheaper rubber, too,
Than the jungle gums.



Courtesy of the Thermoid Rubber Company, Trenton, N. J.

In the factories, first of all,
The crude rubber stuff
Must be cleaned and purified
To make it good enough.

Many things are done to it;
Through big machines it goes.
First it's mashed and turned and rolled,
While water on it flows.



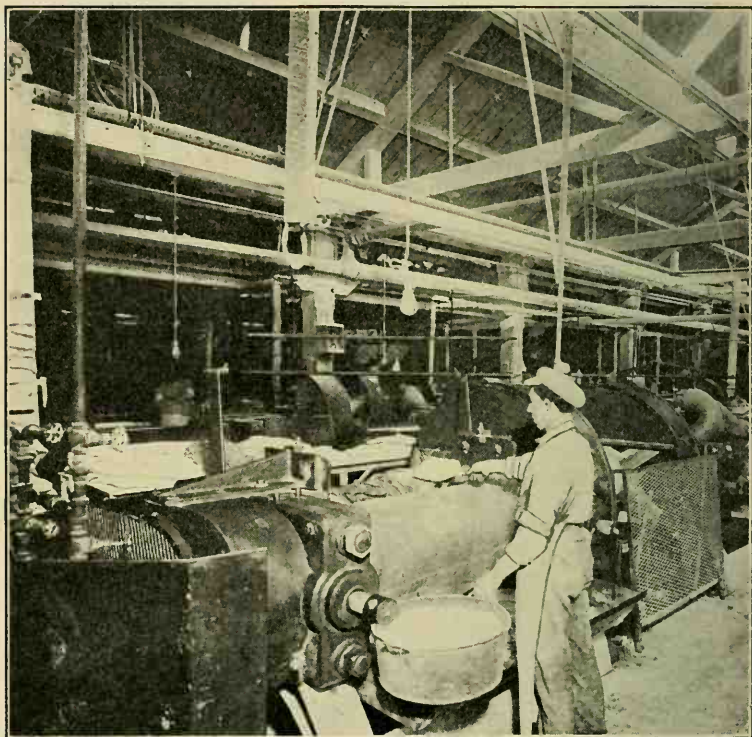
Courtesy of the Hood Rubber Company, Watertown, Mass.

In a vacuum drier now
The rubber crepe is laid.
Air and water are sucked out;
Quite dry the gum is made.



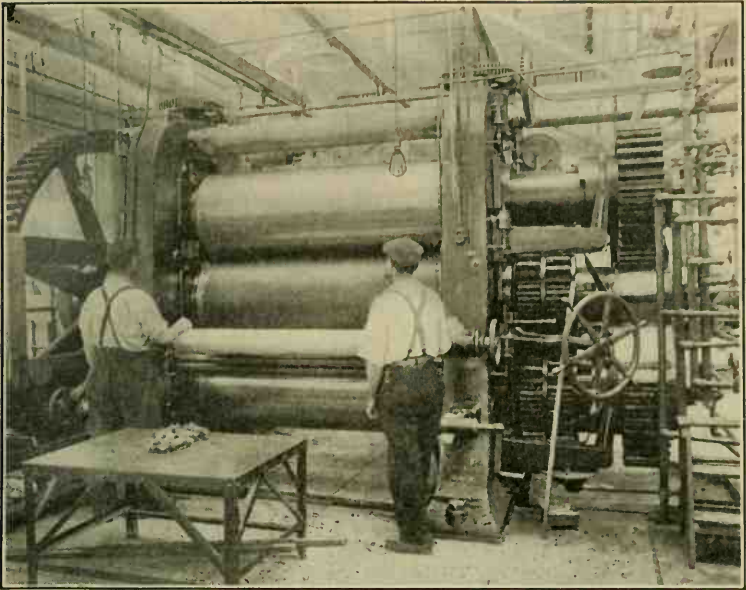
Courtesy of the Thermoid Rubber Company.

In the mixing room men stand
And, with greatest care,
Sulphur and some other things
They weigh and measure there.



Courtesy of the Thermoid Rubber Company.

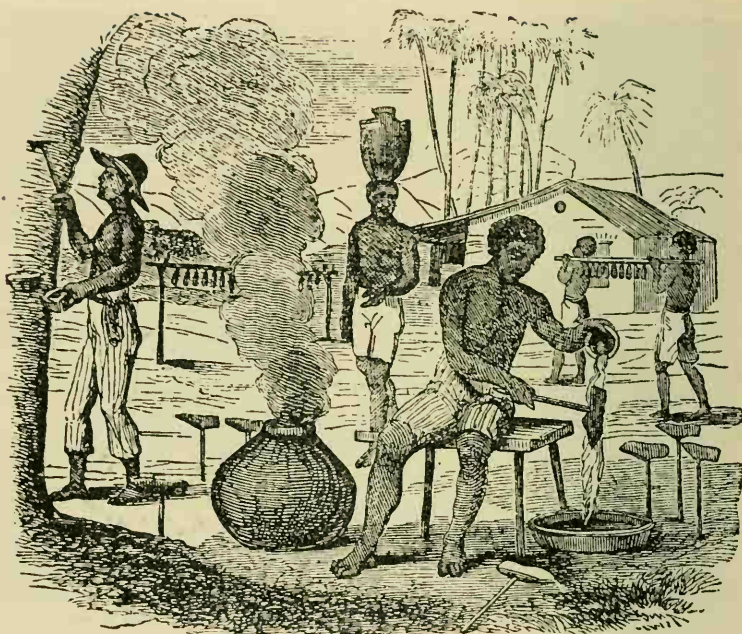
The heated rollers of the "mill"
Are turning round and round.
Here chemicals and clean, dry gum
Are ground and ground and ground.



Courtesy of the Hood Rubber Company.

We say this gum is “vulcanized.”
It’s ready now to spread
Upon long rolls of cotton cloth,
As butter’s spread on bread.

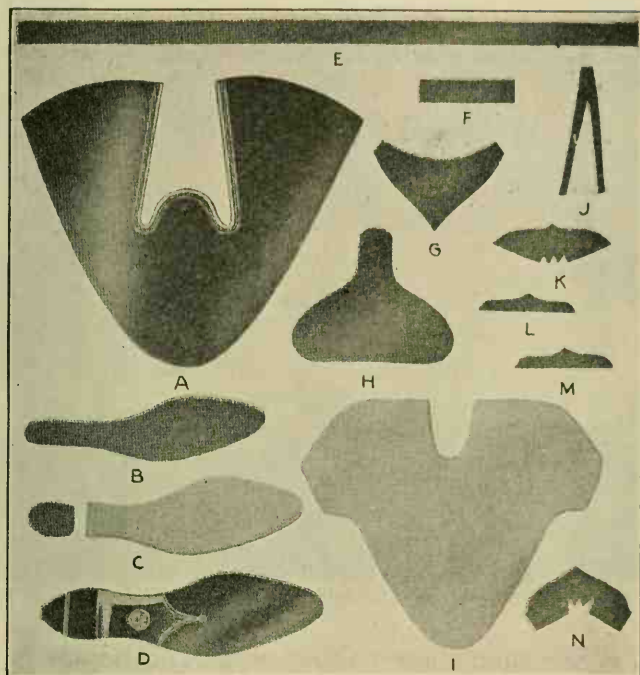
But heated rollers must be used
To soften up the gum,
And make it stick upon the cloth
As if the two were one.



From "Brazil and the Brazilians" by Kidder and Fletcher.

Man very early learned the fact
That rubber sheds the rain,
And so in clothes he used the stuff
Dryness and warmth to gain.

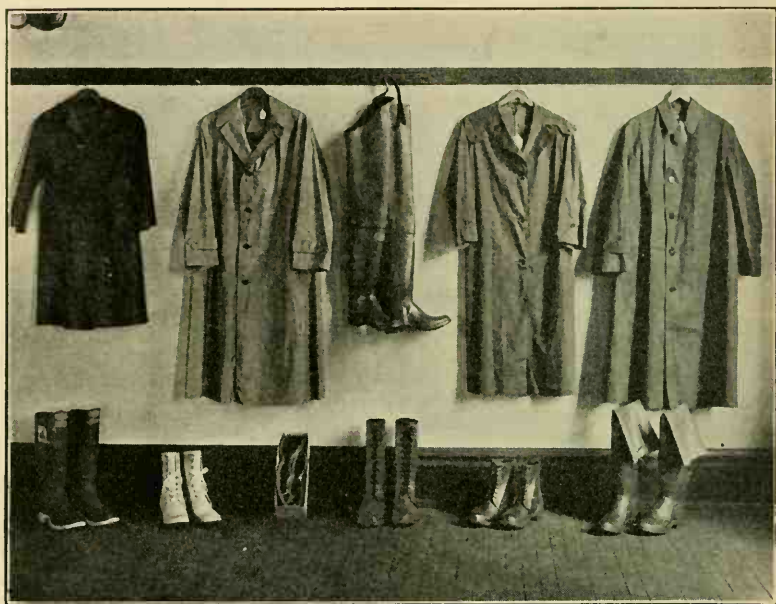
The natives of the jungle used
Ways crude and very queer.
Then McIntosh and Goodyear came,
And better ways appear.



Courtesy of the Hood Rubber Company.

Parts of a rubber overshoe.

- | | |
|---------------------------------|----------------------|
| A. Rubber upper. | H. Heel piece. |
| B. Friction filler. | I. Net lining. |
| C. Rubber heel seat and insole. | J. Joiner strip. |
| D. Outsole. | K. Friction toe tip. |
| E. Rubber piping. | L. Rubber toe tip. |
| F. Rubber shank stay. | M. Rubber heel tip. |
| G. Junior. | N. Heel stay. |



Courtesy of the Lambertville Rubber Company (boots) and the Trenton Raincoat Company (coats).

See then these rubber coats and boots.
Surely here you'll find
Boots just right for Father dear.
Choose then the proper kind.

This poem was printed in letters so large that all could see it and read as they walked down Rubber Row. But there was only this one copy ; and the children did so want to tell Father the whole story when they went

home! But how could they learn it by heart before the store closed? They knew there wouldn't be time for this, so they decided to read it over and over, and think so hard about it while they read that they could tell the story truly, even though they didn't remember the rhymes.

Have you ever tried to change a poem into a story? Try it with this one, as the Everybody children did.

A REFERENCE LIST FOR TEACHERS AND PUPILS

(Books written especially for children are marked with an asterisk. Most of the industrial-commercial booklets may be had for the asking.)

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- * BASSETT, SARA W.:
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The Story of Silk. The Penn Publishing Company.
The Story of Wool. The Penn Publishing Company.
- BEAN, C. E. W., *On The Wool Track*. Dodd, Mead and Company.
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- * BROOKS, E. C., *The Story of Cotton*. Rand McNally and Company.
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